141st Field Artillery Battalion Readiness Center

Jackson Barracks
New Orleans, Louisiana

National Guard Bureau
Project No. 220027

Louisiana Army National Guard

Volume 3 of 5
Appendixes J – R

35% Design Submittal
Preliminary Review Documents
3 May 2006

Broadmoor Design Group, Dean Duplantier, Architect,
A Professional Architectural Corporation /
Blitch Knevel Architects, Inc. - A Joint Venture

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J. U-Value Calculations

Prepared by:

Lucien T. Vivien, Jr. & Associates, Inc.

(4 pages follow)

Wall Constructions

Face Brick+Air Space+Vapor Barrier+Ploy Isp+Bloc

Wall Details

Outside Surface Color ..... **Medium**
Absorptivity **0.675**
Overall U-Value ..... **0.061** BTU/(hr-ft²-°F)

Wall Layers Details (Inside to Outside)

Layers	Thickness in	Density lb/ft³	Specific Ht. BTU / (lb - °F)	R-Value (hr-ft²-°F)/BTU	Weight lb/ft²
Inside surface resistance	0.000	0.0	0.00	0.68500	0.0
12-in HW concrete block	12.000	61.0	0.20	1.66667	61.0
R-14 board insulation	1.750	2.0	0.22	12.15278	0.3
Asphalt roll	0.063	70.0	0.36	0.15319	0.4
Air space	2.000	0.0	0.00	0.91000	0.0
4-in face brick	4.000	125.0	0.22	0.43290	41.7
Outside surface resistance	0.000	0.0	0.00	0.33300	0.0
Totals	**19.813**	-		**16.33354**	**103.3**

Face Brick+Air+Asphalt+Plyl Iso+Block+Air+Gypsum

Wall Details

Outside Surface Color ..... **Medium**
Absorptivity **0.675**
Overall U-Value ..... **0.056** BTU/(hr-ft²-°F)

Wall Layers Details (Inside to Outside)

Layers	Thickness in	Density lb/ft³	Specific Ht. BTU / (lb - °F)	R-Value (hr-ft²-°F)/BTU	Weight lb/ft²
Inside surface resistance	0.000	0.0	0.00	0.68500	0.0
5/8-in gypsum board	0.625	50.0	0.26	0.56004	2.6
Air space	0.500	0.0	0.00	0.91000	0.0
12-in HW concrete block	12.000	61.0	0.20	1.66667	61.0
R-14 board insulation	1.750	2.0	0.22	12.15278	0.3
Asphalt roll	0.063	70.0	0.36	0.15319	0.4
Air space	2.000	0.0	0.00	0.91000	0.0
4-in face brick	4.000	125.0	0.22	0.43290	41.7
Outside surface resistance	0.000	0.0	0.00	0.33300	0.0
Totals	**20.938**	-		**17.80357**	**105.9**

Stone+Air+Asphalt+Plyl Iso+Block+Air+Gyp(1)

Wall Details

Outside Surface Color ..... **Medium**
Absorptivity **0.675**
Overall U-Value ..... **0.057** BTU/(hr-ft²-°F)

Wall Layers Details (Inside to Outside)

Layers	Thickness in	Density lb/ft³	Specific Ht. BTU / (lb - °F)	R-Value (hr-ft²-°F)/BTU	Weight lb/ft²
Inside surface resistance	0.000	0.0	0.00	0.68500	0.0
5/8-in gypsum board	0.625	50.0	0.26	0.56004	2.6
Air space	0.500	0.0	0.00	0.91000	0.0
12-in HW concrete block	12.000	61.0	0.20	1.66667	61.0
R-14 board insulation	1.750	2.0	0.22	12.15278	0.3
Asphalt roll	0.063	70.0	0.36	0.15319	0.4
Air space	2.000	0.0	0.00	0.91000	0.0
4-in face brick	3.750	160.0	0.19	0.05000	50.0
Outside surface resistance	0.000	0.0	0.00	0.33300	0.0
Totals	**20.688**	-		**17.42067**	**114.3**

Roof Constructions

Metal Deck+Poly Iso+Poly Iso+Asphalt Roll+Metal

Roof Details

Outside Surface Color ..... **Medium**
Absorptivity **0.675**
Overall U-Value ..... **0.035** BTU/(hr-ft²-°F)

Roof Layers Details (Inside to Outside)

Layers	Thickness in	Density lb/ft³	Specific Ht. BTU / (lb - °F)	R-Value (hr-ft²-°F)/BTU	Weight lb/ft²
Inside surface resistance	0.000	0.0	0.00	0.68500	0.0
22 gage steel deck	0.034	489.0	0.12	0.00011	1.4
R-14 board insulation	2.000	2.0	0.22	13.88889	0.3
R-14 board insulation	2.000	2.0	0.22	13.88889	0.3
Asphalt roll	0.063	70.0	0.36	0.15319	0.4
22 gage steel deck	0.034	489.0	0.12	0.00011	1.4
Outside surface resistance	0.000	0.0	0.00	0.33300	0.0
Totals	**4.130**	-		**28.94918**	**3.8**

K. Cooling/Heating Load Calculations

K-1 HVAC Load Calculations

Prepared by:

Lucien T. Vivien, Jr. & Associates, Inc.

(32 pages follow)

SYSTEM SIZING SUMMARY

System: AHU 1-1
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	114,513 BTU/hr	Load Occurs	July 17:00
Sensible Coil Load	102,000 BTU/hr	Outdoor Db/Wb	93.4/79.6 F
Total Zone Sensible	81,158 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	79.1/63.9 F
Supply Air (Actual)	3,758 CFM	Leaving Db/Wb	54.0/53.3 F
Supply Air (Standard)	3,757 CFM	Apparatus Dewpoint	52.6 F
Ventilation Air	0 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	49.6 %
Reheat Required	0 BTU/hr		
		Total Coil Load	9.54 Ton
Floor Area	10,853 sqft	Sensible Coil Load	8.50 Ton
Overall U-Value	0.174 BTU/hr/sqft/F	SQFT/Ton	1,137.30
Vent Air	0.00 CFM/sqft	Cooling	10.55 BTU/hr/sqft
Vent Air	0.00 CFM/Person	Cooling	0.35 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	44,301 BTU/hr	Heating	4.08 BTU/hr/sqft
Ventilation Load	0 BTU/hr	Heating	0.35 CFM/sqft
Total Zone Load	44,301 BTU/hr	Floor Area	10,853 sqft
Ventilation Airflow	0 CFM	Overall U-Value	0.174
Supply Airflow	3,758 CFM	Vent Air	0.00 CFM/sqft
		Vent Air	0.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 1-1	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply		Roof Load	70 %
Ventilation		Lighting Load	30 %
Exhaust		Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	1.50 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	July 17:00	8.50	9.54	6)	July 18:00	8.46	9.50
2)	September 15:00	8.49	9.53	7)	July 16:00	8.44	9.48
3)	June 17:00	8.48	9.53	8)	August 16:00	8.43	9.47
4)	September 16:00	8.47	9.51	9)	September 14:00	8.42	9.46
5)	June 18:00	8.46	9.51	10)	August 15:00	8.42	9.46

SYSTEM SIZING SUMMARY

System: AHU 1-1
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
Heated Storage 127	81,158	3,758	July 17:00	44,301	-
	Total:	3,758		Total:	.00

SYSTEM SIZING SUMMARY

System: AHU 1-2
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	256,015 BTU/hr	Load Occurs	July 15:00
Sensible Coil Load	188,365 BTU/hr	Outdoor Db/Wb	95.0/80.0 F
Total Zone Sensible	164,070 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	76.2/64.4 F
Supply Air (Actual)	7,597 CFM	Leaving Db/Wb	53.3/52.8 F
Supply Air (Standard)	7,596 CFM	Apparatus Dewpoint	52.1 F
Ventilation Air	0 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	55.3 %
Reheat Required	0 BTU/hr		
		Total Coil Load	21.33 Ton
Floor Area	6,654 sqft	Sensible Coil Load	15.70 Ton
Overall U-Value	0.310 BTU/hr/sqft/F	SQFT/Ton	311.89
Vent Air	0.00 CFM/sqft	Cooling	38.48 BTU/hr/sqft
Vent Air	0.00 CFM/Person	Cooling	1.14 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	45,953 BTU/hr	Heating	6.91 BTU/hr/sqft
Ventilation Load	0 BTU/hr	Heating	1.14 CFM/sqft
Total Zone Load	45,953 BTU/hr	Floor Area	6,654 sqft
Ventilation Airflow	0 CFM	Overall U-Value	0.310
Supply Airflow	7,597 CFM	Vent Air	0.00 CFM/sqft
		Vent Air	0.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 1-2	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply		Roof Load	70 %
Ventilation		Lighting Load	30 %
Exhaust		Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	2.50 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	July 15:00	15.70	21.33	6)	July 16:00	15.65	21.28
2)	July 14:00	15.68	21.32	7)	June 17:00	15.63	21.26
3)	June 15:00	15.68	21.32	8)	July 13:00	15.60	21.24
4)	June 14:00	15.67	21.30	9)	July 17:00	15.59	21.23
5)	June 16:00	15.66	21.29	10)	June 13:00	15.59	21.22

SYSTEM SIZING SUMMARY

System: AHU 1-2
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006
Page: 2

TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
Classroom 122	56,049	2,595	July 10:00	24,050	-
Classroom 123	35,550	1,646	June 17:00	7,123	-
Classroom 124	35,267	1,633	June 17:00	7,123	-
Classroom 125	35,090	1,625	June 17:00	7,123	-
Corridor 109	3,593	166	July 15:00	535	-
	Total:	7,665		Total:	.00

SYSTEM SIZING SUMMARY

System: AHU 1-3
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	145,042 BTU/hr	Load Occurs	November 15:00
Sensible Coil Load	122,492 BTU/hr	Outdoor Db/Wb	83.0/74.0 F
Total Zone Sensible	103,000 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	77.1/63.3 F
Supply Air (Actual)	4,769 CFM	Leaving Db/Wb	53.3/52.7 F
Supply Air (Standard)	4,769 CFM	Apparatus Dewpoint	52.0 F
Ventilation Air	0 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	50.3 %
Reheat Required	0 BTU/hr		
		Total Coil Load	12.09 Ton
Floor Area	6,939 sqft	Sensible Coil Load	10.21 Ton
Overall U-Value	0.172 BTU/hr/sqft/F	SQFT/Ton	574.09
Vent Air	0.00 CFM/sqft	Cooling	20.90 BTU/hr/sqft
Vent Air	0.00 CFM/Person	Cooling	0.69 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	19,108 BTU/hr	Heating	2.75 BTU/hr/sqft
Ventilation Load	0 BTU/hr	Heating	0.69 CFM/sqft
Total Zone Load	19,108 BTU/hr	Floor Area	6,939 sqft
Ventilation Airflow	0 CFM	Overall U-Value	0.172
Supply Airflow	4,769 CFM	Vent Air	0.00 CFM/sqft
		Vent Air	0.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 1-3	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply	55.0 F	Roof Load	70 %
Ventilation	0 CFM	Lighting Load	30 %
Exhaust	0.00 CFM	Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	2.50 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	November 15:00	10.21	12.09	6)	November 16:00	10.11	11.99
2)	October 15:00	10.20	12.08	7)	December 15:00	10.08	11.96
3)	October 14:00	10.18	12.06	8)	October 13:00	10.07	11.95
4)	November 14:00	10.18	12.05	9)	December 14:00	10.05	11.93
5)	October 16:00	10.12	12.00	10)	November 13:00	10.05	11.93

SYSTEM SIZING SUMMARY

System: AHU 1-3
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006
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TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
Audio Visual 126	10,155	470	January 23:00	0	-
Break/Vending 118	16,059	744	November 15:00	5,574	-
Classroom 117A	21,382	990	October 15:00	6,561	-
Corridor 108	3,885	180	January 23:00	0	-
Corridor 109A	2,205	102	October 18:00	522	-
Corridor 110	504	23	January 23:00	0	-
elevator Vest	319	15	January 23:00	0	-
Library 119	10,682	495	January 23:00	0	-
Men RR 104	1,889	87	January 23:00	0	-
Storage 121	1,515	70	January 23:00	0	-
Table Storage 116	3,054	141	January 23:00	0	-
Women RR 105	2,165	100	January 23:00	0	-
Class room 117	29,419	1,362	November 15:00	6,451	-
	Total:	4,779		Total:	.00

SYSTEM SIZING SUMMARY

System: AHU 1-4
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	38,925 BTU/hr	Load Occurs	June 17:00
Sensible Coil Load	36,670 BTU/hr	Outdoor Db/Wb	92.4/79.6 F
Total Zone Sensible	31,395 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	76.6/62.1 F
Supply Air (Actual)	1,454 CFM	Leaving Db/Wb	53.3/52.6 F
Supply Air (Standard)	1,453 CFM	Apparatus Dewpoint	52.1 F
Ventilation Air	0 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	46.5 %
Reheat Required	0 BTU/hr		
		Total Coil Load	3.24 Ton
Floor Area	1,681 sqft	Sensible Coil Load	3.06 Ton
Overall U-Value	0.261 BTU/hr/sqft/F	SQFT/Ton	518.22
Vent Air	0.00 CFM/sqft	Cooling	23.16 BTU/hr/sqft
Vent Air	0.00 CFM/Person	Cooling	0.86 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	14,130 BTU/hr	Heating	8.41 BTU/hr/sqft
Ventilation Load	0 BTU/hr	Heating	0.86 CFM/sqft
Total Zone Load	14,130 BTU/hr	Floor Area	1,681 sqft
Ventilation Airflow	0 CFM	Overall U-Value	0.261
Supply Airflow	1,454 CFM	Vent Air	0.00 CFM/sqft
		Vent Air	0.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 1-4	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply	55.0 F	Roof Load	70 %
Ventilation	0 CFM	Lighting Load	30 %
Exhaust	0.00 CFM	Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	2.50 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	June 17:00	3.06	3.24	6)	June 15:00	3.01	3.19
2)	June 18:00	3.03	3.22	7)	July 15:00	3.00	3.19
3)	June 16:00	3.03	3.21	8)	July 18:00	2.99	3.18
4)	July 17:00	3.02	3.21	9)	June 14:00	2.98	3.17
5)	July 16:00	3.01	3.20	10)	July 14:00	2.98	3.17

SYSTEM SIZING SUMMARY

System: AHU 1-4
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006
Page: 2

TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
Family Support 113	6,411	297	January 23:00	0	-
Janitor 114	354	16	January 23:00	0	-
Lobby 100	894	41	January 23:00	0	-
Recruiting 112	8,628	400	June 17:00	3,377	-
Security 111	6,908	320	June 17:00	2,555	-
Vestibule 107	8,203	380	June 17:00	8,198	-
	Total:	1,454		Total:	.00

SYSTEM SIZING SUMMARY

System: AHU 1-5
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	595,267 BTU/hr	Load Occurs	July 17:00
Sensible Coil Load	294,967 BTU/hr	Outdoor Db/Wb	93.4/79.6 F
Total Zone Sensible	274,025 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	75.8/69.3 F
Supply Air (Actual)	12,688 CFM	Leaving Db/Wb	54.3/54.1 F
Supply Air (Standard)	12,686 CFM	Apparatus Dewpoint	53.2 F
Ventilation Air	0 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	74.4 %
Reheat Required	0 BTU/hr		
		Total Coil Load	49.61 Ton
Floor Area	7,514 sqft	Sensible Coil Load	24.58 Ton
Overall U-Value	0.094 BTU/hr/sqft/F	SQFT/Ton	151.47
Vent Air	0.00 CFM/sqft	Cooling	79.22 BTU/hr/sqft
Vent Air	0.00 CFM/Person	Cooling	1.69 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	69,871 BTU/hr	Heating	9.30 BTU/hr/sqft
Ventilation Load	0 BTU/hr	Heating	1.69 CFM/sqft
Total Zone Load	69,871 BTU/hr	Floor Area	7,514 sqft
Ventilation Airflow	0 CFM	Overall U-Value	0.094
Supply Airflow	12,688 CFM	Vent Air	0.00 CFM/sqft
		Vent Air	0.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 1-5	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply	55.0 F	Roof Load	70 %
Ventilation	0 CFM	Lighting Load	30 %
Exhaust	0.00 CFM	Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	1.00 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	July 17:00	24.58	49.61	6)	July 16:00	24.47	49.50
2)	July 18:00	24.54	49.57	7)	July 19:00	24.42	49.44
3)	June 17:00	24.51	49.54	8)	June 16:00	24.40	49.43
4)	June 18:00	24.50	49.52	9)	August 16:00	24.38	49.41
5)	August 17:00	24.48	49.51	10)	July 20:00	24.38	49.40

SYSTEM SIZING SUMMARY

System: AHU 1-5
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
Assembly Hall 115	274,025	12,688	July 17:00	69,871	-
	Total:	12,688		Total:	.00

SYSTEM SIZING SUMMARY

System: AHU 2-1
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006
Page: 1

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	9,928 BTU/hr	Load Occurs	January 23:00
Sensible Coil Load	9,026 BTU/hr	Outdoor Db/Wb	64.8/64.1 F
Total Zone Sensible	6,945 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	80.3/64.2 F
Supply Air (Actual)	322 CFM	Leaving Db/Wb	54.3/53.6 F
Supply Air (Standard)	322 CFM	Apparatus Dewpoint	52.9 F
Ventilation Air	0 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	49.5 %
Reheat Required	0 BTU/hr		
		Total Coil Load	0.83 Ton
Floor Area	1,200 sqft	Sensible Coil Load	0.75 Ton
Overall U-Value	0.000 BTU/hr/sqft/F	SQFT/Ton	1,450.45
Vent Air	0.00 CFM/sqft	Cooling	8.27 BTU/hr/sqft
Vent Air	0.00 CFM/Person	Cooling	0.27 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	611 BTU/hr	Heating	0.51 BTU/hr/sqft
Ventilation Load	0 BTU/hr	Heating	0.27 CFM/sqft
Total Zone Load	611 BTU/hr	Floor Area	1,200 sqft
Ventilation Airflow	0 CFM	Overall U-Value	0.000
Supply Airflow	322 CFM	Vent Air	0.00 CFM/sqft
		Vent Air	0.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 2-1	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply	55.0 F	Roof Load	70 %
Ventilation	0 CFM	Lighting Load	30 %
Exhaust	0.00 CFM	Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	1.00 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	January 23:00	0.75	0.83	6)	June 23:00	0.75	0.83
2)	February 23:00	0.75	0.83	7)	July 23:00	0.75	0.83
3)	March 23:00	0.75	0.83	8)	August 23:00	0.75	0.83
4)	April 23:00	0.75	0.83	9)	September 23:00	0.75	0.83
5)	May 23:00	0.75	0.83	10)	October 23:00	0.75	0.83

SYSTEM SIZING SUMMARY

System: AHU 2-1
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
Vault 212	6,945	322	January 23:00	611	-
	Total:	322		Total:	.00

SYSTEM SIZING SUMMARY

System: AHU 2-2
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	136,194 BTU/hr	Load Occurs	January 23:00
Sensible Coil Load	92,898 BTU/hr	Outdoor Db/Wb	64.8/64.1 F
Total Zone Sensible	76,608 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	77.5/65.9 F
Supply Air (Actual)	3,547 CFM	Leaving Db/Wb	53.3/52.8 F
Supply Air (Standard)	3,547 CFM	Apparatus Dewpoint	52.0 F
Ventilation Air	0 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	59. %
Reheat Required	0 BTU/hr		
		Total Coil Load	11.35 Ton
Floor Area	6,328 sqft	Sensible Coil Load	7.74 Ton
Overall U-Value	0.000 BTU/hr/sqft/F	SQFT/Ton	557.56
Vent Air	0.00 CFM/sqft	Cooling	21.52 BTU/hr/sqft
Vent Air	0.00 CFM/Person	Cooling	0.56 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	0 BTU/hr	Heating	0.00 BTU/hr/sqft
Ventilation Load	0 BTU/hr	Heating	0.56 CFM/sqft
Total Zone Load	0 BTU/hr	Floor Area	6,328 sqft
Ventilation Airflow	0 CFM	Overall U-Value	0.000
Supply Airflow	3,547 CFM	Vent Air	0.00 CFM/sqft
		Vent Air	0.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 2-2	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply	55.0 F	Roof Load	70 %
Ventilation	0 CFM	Lighting Load	30 %
Exhaust	0.00 CFM	Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	2.50 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	January 23:00	7.74	11.35	6)	June 23:00	7.74	11.35
2)	February 23:00	7.74	11.35	7)	July 23:00	7.74	11.35
3)	March 23:00	7.74	11.35	8)	August 23:00	7.74	11.35
4)	April 23:00	7.74	11.35	9)	September 23:00	7.74	11.35
5)	May 23:00	7.74	11.35	10)	October 23:00	7.74	11.35

SYSTEM SIZING SUMMARY

System: AHU 2-2
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
Corridor 208	2,267	105	January 23:00	0	-
Elev. Equip 229	279	13	January 23:00	0	-
Janitor 228	394	18	January 23:00	0	-
Men Locker 219	39,780	1,842	January 23:00	0	-
Men RR 204	1,023	47	January 23:00	0	-
Men Toilet 218	2,370	110	January 23:00	0	-
Store Room 223	331	15	January 23:00	0	-
Vest 230	787	36	January 23:00	0	-
Women Locker 217	25,489	1,180	January 23:00	0	-
Women RR 205	1,023	47	January 23:00	0	-
Women Toilet 216	2,865	133	January 23:00	0	-
	Total:	3,546		Total:	.00

SYSTEM SIZING SUMMARY

System: AHU 2-3
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	154,290 BTU/hr	Load Occurs	June 17:00
Sensible Coil Load	144,819 BTU/hr	Outdoor Db/Wb	92.4/79.6 F
Total Zone Sensible	123,920 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	76.7/62.2 F
Supply Air (Actual)	5,738 CFM	Leaving Db/Wb	53.3/52.6 F
Supply Air (Standard)	5,737 CFM	Apparatus Dewpoint	52.1 F
Ventilation Air	0 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	46.6 %
Reheat Required	0 BTU/hr		
		Total Coil Load	12.86 Ton
Floor Area	5,720 sqft	Sensible Coil Load	12.07 Ton
Overall U-Value	0.192 BTU/hr/sqft/F	SQFT/Ton	444.88
Vent Air	0.00 CFM/sqft	Cooling	26.97 BTU/hr/sqft
Vent Air	0.00 CFM/Person	Cooling	1.00 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	24,959 BTU/hr	Heating	4.36 BTU/hr/sqft
Ventilation Load	0 BTU/hr	Heating	1.00 CFM/sqft
Total Zone Load	24,959 BTU/hr	Floor Area	5,720 sqft
Ventilation Airflow	0 CFM	Overall U-Value	0.192
Supply Airflow	5,738 CFM	Vent Air	0.00 CFM/sqft
		Vent Air	0.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 2-3	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply	55.0 F	Roof Load	70 %
Ventilation	0 CFM	Lighting Load	30 %
Exhaust	0.00 CFM	Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	2.50 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	June 17:00	12.07	12.86	6)	July 16:00	12.04	12.83
2)	June 16:00	12.06	12.85	7)	July 14:00	12.04	12.82
3)	June 15:00	12.06	12.85	8)	July 17:00	12.03	12.82
4)	July 15:00	12.05	12.84	9)	June 18:00	12.00	12.79
5)	June 14:00	12.04	12.83	10)	June 13:00	11.99	12.78

SYSTEM SIZING SUMMARY

System: AHU 2-3
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006
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TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
1st 349 RCT	27,041	1,252	June 17:00	13,300	-
Audio Equipmnet 242	8,238	381	January 23:00	0	-
CMDS 229	11,263	522	July 18:00	706	-
Comm. 207	256	12	January 23:00	0	-
Cooridor 239	1,189	55	January 23:00	0	-
Corridor 238	6,592	305	July 10:00	3,938	-
Electrical 206	331	15	January 23:00	0	-
SIM Center	57,035	2,641	June 17:00	7,015	-
Storage 215	354	16	January 23:00	0	-
Storage 231	1,330	62	January 23:00	0	-
Storage 236	354	16	January 23:00	0	-
tech 230	11,099	514	January 23:00	0	-
	Total:	5,791		Total:	.00

SYSTEM SIZING SUMMARY

System: AHU 2-4
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006
Page: 1

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	293,066 BTU/hr	Load Occurs	June 17:00
Sensible Coil Load	211,886 BTU/hr	Outdoor Db/Wb	92.4/79.6 F
Total Zone Sensible	183,791 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	76.3/64.7 F
Supply Air (Actual)	8,510 CFM	Leaving Db/Wb	53.3/52.8 F
Supply Air (Standard)	8,509 CFM	Apparatus Dewpoint	52.1 F
Ventilation Air	0 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	56. %
Reheat Required	0 BTU/hr		
		Total Coil Load	24.42 Ton
Floor Area	8,027 sqft	Sensible Coil Load	17.66 Ton
Overall U-Value	0.318 BTU/hr/sqft/F	SQFT/Ton	328.68
Vent Air	0.00 CFM/sqft	Cooling	36.51 BTU/hr/sqft
Vent Air	0.00 CFM/Person	Cooling	1.06 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	44,824 BTU/hr	Heating	5.58 BTU/hr/sqft
Ventilation Load	0 BTU/hr	Heating	1.06 CFM/sqft
Total Zone Load	44,824 BTU/hr	Floor Area	8,027 sqft
Ventilation Airflow	0 CFM	Overall U-Value	0.318
Supply Airflow	8,510 CFM	Vent Air	0.00 CFM/sqft
		Vent Air	0.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 2-4	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply	55.0 F	Roof Load	70 %
Ventilation	0 CFM	Lighting Load	30 %
Exhaust	0.00 CFM	Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	2.50 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	June 17:00	17.66	24.42	6)	July 18:00	17.32	24.09
2)	July 17:00	17.61	24.38	7)	August 16:00	17.29	24.06
3)	June 16:00	17.50	24.26	8)	August 17:00	17.29	24.06
4)	July 16:00	17.49	24.26	9)	July 15:00	17.26	24.02
5)	June 18:00	17.44	24.20	10)	June 15:00	17.23	23.99

SYSTEM SIZING SUMMARY

System: AHU 2-4
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
Corridor 210	3,322	154	January 23:00	0	-
Janitor 224	169	8	January 23:00	0	-
Lobby 200	8,054	373	June 17:00	4,160	-
Men Lockers 221	165,258	7,652	June 17:00	38,390	-
Men toilet 220	2,913	135	January 23:00	0	-
Storage 225	279	13	January 23:00	0	-
Vest 226	3,840	178	July 17:00	2,274	-
	Total:	8,513		Total:	.00

SYSTEM SIZING SUMMARY

System: AHU 3-1
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	158,938 BTU/hr	Load Occurs	October 15:00
Sensible Coil Load	149,918 BTU/hr	Outdoor Db/Wb	89.0/77.0 F
Total Zone Sensible	126,768 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	76.9/62.2 F
Supply Air (Actual)	5,870 CFM	Leaving Db/Wb	53.3/52.6 F
Supply Air (Standard)	5,869 CFM	Apparatus Dewpoint	52.0 F
Ventilation Air	0 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	46.5 %
Reheat Required	0 BTU/hr		
		Total Coil Load	13.24 Ton
Floor Area	5,657 sqft	Sensible Coil Load	12.49 Ton
Overall U-Value	0.080 BTU/hr/sqft/F	SQFT/Ton	427.11
Vent Air	0.00 CFM/sqft	Cooling	28.10 BTU/hr/sqft
Vent Air	0.00 CFM/Person	Cooling	1.04 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	27,770 BTU/hr	Heating	4.91 BTU/hr/sqft
Ventilation Load	0 BTU/hr	Heating	1.04 CFM/sqft
Total Zone Load	27,770 BTU/hr	Floor Area	5,657 sqft
Ventilation Airflow	0 CFM	Overall U-Value	0.080
Supply Airflow	5,870 CFM	Vent Air	0.00 CFM/sqft
		Vent Air	0.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 3-1	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply	55.0 F	Roof Load	70 %
Ventilation	0 CFM	Lighting Load	30 %
Exhaust	0.00 CFM	Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	2.50 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	October 15:00	12.49	13.24	6)	October 14:00	12.43	13.18
2)	September 15:00	12.49	13.24	7)	September 17:00	12.43	13.18
3)	September 16:00	12.48	13.23	8)	October 17:00	12.38	13.13
4)	October 16:00	12.48	13.23	9)	September 18:00	12.35	13.10
5)	September 14:00	12.43	13.18	10)	August 16:00	12.34	13.09

SYSTEM SIZING SUMMARY

System: AHU 3-1
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
1st Plat GSG	6,122	283	October 16:00	1,037	-
1st Plat LDR 321 A	7,653	354	October 15:00	3,506	-
1st plat LDR 321B	6,942	321	June 14:00	2,508	-
1st Plat SGT321	6,410	297	November 15:00	1,619	-
2nd Plat LDR	6,830	316	November 15:00	1,421	-
2nd Plat SGT	6,407	297	November 15:00	1,501	-
2ns Plat GSG	4,763	221	January 23:00	0	-
clerk A 321	7,118	330	November 15:00	1,861	-
Comander 321	7,883	365	November 15:00	2,604	-
ISG 321	7,854	364	November 15:00	2,568	-
Men RR 304	1,023	47	January 23:00	0	-
R-NCO	4,763	221	January 23:00	0	-
Storage Room 319	2,413	112	January 23:00	0	-
T-NCO	4,763	221	January 23:00	0	-
Battery A Admin	24,369	1,128	July 18:00	4,836	-
Battery B Admin	23,580	1,092	July 18:00	4,307	-
	Total:	5,969		Total:	.00

SYSTEM SIZING SUMMARY

System: AHU 3-2
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	206,400 BTU/hr	Load Occurs	June 17:00
Sensible Coil Load	195,125 BTU/hr	Outdoor Db/Wb	92.4/79.6 F
Total Zone Sensible	161,705 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	77.4/62.4 F
Supply Air (Actual)	7,487 CFM	Leaving Db/Wb	53.3/52.6 F
Supply Air (Standard)	7,486 CFM	Apparatus Dewpoint	52.0 F
Ventilation Air	0 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	46.4 %
Reheat Required	0 BTU/hr		
		Total Coil Load	17.20 Ton
Floor Area	7,858 sqft	Sensible Coil Load	16.26 Ton
Overall U-Value	0.098 BTU/hr/sqft/F	SQFT/Ton	456.89
Vent Air	0.00 CFM/sqft	Cooling	26.26 BTU/hr/sqft
Vent Air	0.00 CFM/Person	Cooling	0.95 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	39,450 BTU/hr	Heating	5.02 BTU/hr/sqft
Ventilation Load	0 BTU/hr	Heating	0.95 CFM/sqft
Total Zone Load	39,450 BTU/hr	Floor Area	7,858 sqft
Ventilation Airflow	0 CFM	Overall U-Value	0.098
Supply Airflow	7,487 CFM	Vent Air	0.00 CFM/sqft
		Vent Air	0.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 3-2	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply	55.0 F	Roof Load	70 %
Ventilation	0 CFM	Lighting Load	30 %
Exhaust	0.00 CFM	Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	2.50 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	June 17:00	16.26	17.20	6)	July 16:00	16.14	17.08
2)	June 18:00	16.23	17.17	7)	June 15:00	16.05	16.99
3)	July 17:00	16.22	17.16	8)	July 15:00	16.04	16.98
4)	July 18:00	16.17	17.11	9)	June 19:00	15.97	16.91
5)	June 16:00	16.16	17.10	10)	August 17:00	15.95	16.89

SYSTEM SIZING SUMMARY

System: AHU 3-2
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
1st Plat GSG 322	5,072	235	June 21:00	669	-
1st Plat LDR 322 B	6,885	319	June 17:00	2,859	-
1st Plat LDR 322A	6,991	324	June 17:00	3,256	-
1st Plat SGT 322	5,762	267	June 17:00	1,558	-
2nd Plat GSG 322	4,838	224	January 23:00	0	-
2nd Plat LDR 322	7,263	336	June 17:00	1,878	-
2nd Plat SGT 322	13,179	610	June 17:00	1,107	-
A- Battery 322	31,286	1,449	July 18:00	6,897	-
Break Room 322	9,144	423	January 23:00	0	-
Clerk 322	6,036	280	June 17:00	1,896	-
CMDS 314	9,746	451	July 17:00	2,712	-
Comm 307	4,023	186	January 23:00	0	-
Commander 322	6,795	315	June 17:00	2,299	-
Conference Room 322	19,353	896	June 17:00	8,398	-
Cooridor 309	4,508	209	July 18:00	1,881	-
Electrical 306	4,016	186	January 23:00	0	-
ISG 322	6,946	322	June 17:00	2,953	-
R-NCO 322	4,935	229	July 18:00	418	-
T-NCO 322	5,072	235	June 21:00	669	-
	Total:	7,496		Total:	.00

SYSTEM SIZING SUMMARY

System: AHU 3-3
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	331,322 BTU/hr	Load Occurs	July 17:00
Sensible Coil Load	290,814 BTU/hr	Outdoor Db/Wb	93.4/79.6 F
Total Zone Sensible	252,525 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	76.3/62.7 F
Supply Air (Actual)	11,693 CFM	Leaving Db/Wb	53.3/52.7 F
Supply Air (Standard)	11,691 CFM	Apparatus Dewpoint	52.1 F
Ventilation Air	0 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	48.8 %
Reheat Required	0 BTU/hr		
		Total Coil Load	27.61 Ton
Floor Area	6,865 sqft	Sensible Coil Load	24.23 Ton
Overall U-Value	0.187 BTU/hr/sqft/F	SQFT/Ton	248.64
Vent Air	0.00 CFM/sqft	Cooling	48.26 BTU/hr/sqft
Vent Air	0.00 CFM/Person	Cooling	1.70 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	72,933 BTU/hr	Heating	10.62 BTU/hr/sqft
Ventilation Load	0 BTU/hr	Heating	1.70 CFM/sqft
Total Zone Load	72,933 BTU/hr	Floor Area	6,865 sqft
Ventilation Airflow	0 CFM	Overall U-Value	0.187
Supply Airflow	11,693 CFM	Vent Air	0.00 CFM/sqft
		Vent Air	0.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 3-3	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply	55.0 F	Roof Load	70 %
Ventilation	0 CFM	Lighting Load	30 %
Exhaust	0.00 CFM	Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	2.50 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	July 17:00	24.23	27.61	6)	August 16:00	23.77	27.14
2)	June 17:00	24.22	27.59	7)	June 18:00	23.68	27.05
3)	July 16:00	23.97	27.35	8)	May 17:00	23.68	27.05
4)	June 16:00	23.90	27.28	9)	July 18:00	23.55	26.93
5)	August 17:00	23.87	27.25	10)	May 16:00	23.39	26.77

SYSTEM SIZING SUMMARY

System: AHU 3-3
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
1st Plat GSG 324	4,935	229	July 18:00	418	-
1st plat LDR A 324	6,884	319	June 17:00	2,852	-
1st Plat LDR B 324	7,286	337	June 18:00	3,601	-
1st Plat SGT 324	7,845	363	June 17:00	2,859	-
2nd Plat LDe 324	6,405	297	June 17:00	1,878	-
2nd Plat SGT 324	5,658	262	June 17:00	1,107	-
B-Battery 324	31,286	1,449	July 18:00	6,897	-
Break Room 324	11,024	510	January 23:00	0	-
Clerk 324	6,036	280	June 17:00	1,896	-
CMSD 324	106,014	4,909	July 17:00	35,037	-
Commander 324	7,456	345	June 14:00	2,953	-
conference Room 324	19,317	894	June 17:00	8,398	-
Corridor 308	2,932	136	January 23:00	0	-
ISG 324	6,946	322	June 17:00	2,953	-
Medical 316	8,842	409	October 18:00	829	-
R-NCO 324	4,935	229	July 18:00	418	-
snd PLAt GSG 324	4,876	226	July 18:00	418	-
T-NCO 324	4,876	226	July 18:00	418	-
	Total:	11,742		Total:	.00

SYSTEM SIZING SUMMARY

System: AHU 3-4
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006
Page: 1

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	172,993 BTU/hr	Load Occurs	October 15:00
Sensible Coil Load	162,620 BTU/hr	Outdoor Db/Wb	89.0/77.0 F
Total Zone Sensible	139,367 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	80.1/63.4 F
Supply Air (Actual)	5,611 CFM	Leaving Db/Wb	53.3/52.5 F
Supply Air (Standard)	5,611 CFM	Apparatus Dewpoint	51.9 F
Ventilation Air	0 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	42.2 %
Reheat Required	0 BTU/hr		
		Total Coil Load	14.42 Ton
Floor Area	6,450 sqft	Sensible Coil Load	13.55 Ton
Overall U-Value	0.082 BTU/hr/sqft/F	SQFT/Ton	447.42
Vent Air	0.00 CFM/sqft	Cooling	26.82 BTU/hr/sqft
Vent Air	0.00 CFM/Person	Cooling	0.87 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	30,858 BTU/hr	Heating	4.78 BTU/hr/sqft
Ventilation Load	0 BTU/hr	Heating	0.87 CFM/sqft
Total Zone Load	30,858 BTU/hr	Floor Area	6,450 sqft
Ventilation Airflow	0 CFM	Overall U-Value	0.082
Supply Airflow	5,611 CFM	Vent Air	0.00 CFM/sqft
		Vent Air	0.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 3-4	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	78.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply	55.0 F	Roof Load	70 %
Ventilation	0 CFM	Lighting Load	30 %
Exhaust	0.00 CFM	Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	2.50 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	October 15:00	13.55	14.42	6)	October 17:00	13.40	14.26
2)	October 16:00	13.53	14.39	7)	September 14:00	13.40	14.26
3)	October 14:00	13.48	14.34	8)	September 17:00	13.38	14.25
4)	September 15:00	13.46	14.33	9)	November 15:00	13.35	14.22
5)	September 16:00	13.45	14.31	10)	October 13:00	13.33	14.19

TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
1st Plat GSG 323	6,040	243	October 16:00	1,037	-
1ST PLAT LDR A 323	8,102	326	November 15:00	2,657	-
1ST PLAT LDR B 323	7,348	296	October 15:00	3,251	-
1ST PLAT SGT 323	6,307	254	November 15:00	1,491	-
2ND PLAT GSG 323	4,763	192	January 23:00	0	-
2ND PLAT LDR 323	6,738	271	November 15:00	1,441	-
2ND PLAT SGT 323	6,347	256	November 15:00	1,501	-
BREAK ROOM 323	11,094	447	July 18:00	435	-
CLERK 323	7,804	314	November 15:00	2,425	-
COMMANDER 323	8,200	330	November 15:00	2,852	-
CONFERENCE ROOM 323	11,667	470	June 21:00	1,003	-
CORRIDOR 310	4,210	170	July 18:00	2,508	-
G-COMPANY 323	31,201	1,256	July 18:00	6,897	-
ISG 323	7,684	309	November 15:00	2,551	-
R-NC0 323	4,771	192	January 23:00	0	-
STORAGE 323	2,413	97	January 23:00	0	-
STRG 323	754	30	July 20:00	808	-
T-NCO 323	4,763	192	January 23:00	0	-
WOMEN RR 305	1,023	41	January 23:00	0	-
	Total:	5,686		Total:	.00

SYSTEM SIZING SUMMARY

System: AHU 4-1
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	148,574 BTU/hr	Load Occurs	August 17:00
Sensible Coil Load	122,798 BTU/hr	Outdoor Db/Wb	93.4/79.6 F
Total Zone Sensible	89,083 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	80.9/65.0 F
Supply Air (Actual)	4,125 CFM	Leaving Db/Wb	53.3/52.6 F
Supply Air (Standard)	4,124 CFM	Apparatus Dewpoint	51.8 F
Ventilation Air	395 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	46.6 %
Reheat Required	0 BTU/hr		
		Total Coil Load	12.38 Ton
Floor Area	7,344 sqft	Sensible Coil Load	10.23 Ton
Overall U-Value	0.073 BTU/hr/sqft/F	SQFT/Ton	593.16
Vent Air	0.05 CFM/sqft	Cooling	20.23 BTU/hr/sqft
Vent Air	11.77 CFM/Person	Cooling	0.56 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	57,017 BTU/hr	Heating	7.76 BTU/hr/sqft
Ventilation Load	16,208 BTU/hr	Heating	0.56 CFM/sqft
Total Zone Load	40,808 BTU/hr	Floor Area	7,344 sqft
Ventilation Airflow	395 CFM	Overall U-Value	0.073
Supply Airflow	4,125 CFM	Vent Air	0.05 CFM/sqft
		Vent Air	11.77 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 4-1	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply	55.0 F	Roof Load	70 %
Ventilation	395 CFM	Lighting Load	30 %
Exhaust	0.00 CFM	Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	2.50 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	August 17:00	10.23	12.38	6)	July 17:00	10.16	12.31
2)	August 16:00	10.23	12.38	7)	August 18:00	10.16	12.31
3)	September 16:00	10.28	12.35	8)	July 16:00	10.15	12.30
4)	August 15:00	10.19	12.34	9)	September 17:00	10.23	12.30
5)	September 15:00	10.26	12.33	10)	July 18:00	10.11	12.25

SYSTEM SIZING SUMMARY

System: AHU 4-1
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
CDR	10,662	494	October 15:00	5,295	-
Corridor 408	6,724	311	July 20:00	2,696	-
Corridor 408 A	1,476	68	January 23:00	0	-
Corridor 409	3,047	141	July 18:00	2,044	-
CSM	11,976	555	October 16:00	5,135	-
Men RR 404	950	44	July 18:00	627	-
Office area SE	14,196	657	July 18:00	3,859	-
Office Area SW	15,664	725	June 21:00	5,615	-
Storage 413	1,282	59	July 18:00	732	-
TOC	28,006	1,297	October 15:00	14,179	-
Women RR 405	950	44	July 18:00	627	-
	Total:	4,395		Total:	.00

SYSTEM SIZING SUMMARY

System: AHU 4-2
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006
Page: 1

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	208,821 BTU/hr	Load Occurs	June 17:00
Sensible Coil Load	175,590 BTU/hr	Outdoor Db/Wb	92.4/79.6 F
Total Zone Sensible	138,244 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	78.7/64.0 F
Supply Air (Actual)	6,401 CFM	Leaving Db/Wb	53.3/52.6 F
Supply Air (Standard)	6,400 CFM	Apparatus Dewpoint	51.9 F
Ventilation Air	450 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	46.8 %
Reheat Required	0 BTU/hr		
		Total Coil Load	17.40 Ton
Floor Area	6,393 sqft	Sensible Coil Load	14.63 Ton
Overall U-Value	0.069 BTU/hr/sqft/F	SQFT/Ton	367.38
Vent Air	0.07 CFM/sqft	Cooling	32.66 BTU/hr/sqft
Vent Air	9.00 CFM/Person	Cooling	1.00 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	55,126 BTU/hr	Heating	8.62 BTU/hr/sqft
Ventilation Load	18,465 BTU/hr	Heating	1.00 CFM/sqft
Total Zone Load	36,660 BTU/hr	Floor Area	6,393 sqft
Ventilation Airflow	450 CFM	Overall U-Value	0.069
Supply Airflow	6,401 CFM	Vent Air	0.07 CFM/sqft
		Vent Air	9.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	AHU 4-2	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	68.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	Yes
Supply	55.0 F	Roof Load	70 %
Ventilation	450 CFM	Lighting Load	30 %
Exhaust	0.00 CFM	Wall Load	0 %
FACTORS		FAN	
Coil Bypass	0.050	Configuration	Draw-Thru
Safety (Sens)	10 %	Static Pressure	2.50 in. wg.
Safety (Latent)	10 %		
Heating Safety	10 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	June 17:00	14.63	17.40	6)	July 18:00	14.63	17.36
2)	July 17:00	14.67	17.40	7)	July 15:00	14.55	17.28
3)	June 18:00	14.60	17.37	8)	June 15:00	14.50	17.27
4)	July 16:00	14.63	17.36	9)	August 17:00	14.53	17.25
5)	June 16:00	14.59	17.36	10)	August 16:00	14.50	17.23

SYSTEM SIZING SUMMARY

System: AHU 4-2
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 20, 2006

TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
A-OPS NOC	7,029	325	June 18:00	3,398	-
A-S3	5,749	266	June 17:00	1,619	-
Break room	11,355	526	June 20:00	1,013	-
Comm 407	4,086	189	July 18:00	251	-
Conference Room	11,772	545	June 20:00	1,775	-
Corridor 410	3,990	185	June 21:00	3,244	-
Electrical 406	4,064	188	July 18:00	209	-
Fire Control NOC	5,438	252	July 20:00	1,115	-
Lobby 400	3,645	169	July 18:00	2,445	-
Master Gunner	5,511	255	July 20:00	1,195	-
OPS NOC	6,194	287	June 17:00	1,619	-
S-1	5,429	251	July 16:00	1,206	-
S-1 NOC	5,323	246	July 15:00	736	-
S-2	5,503	255	July 20:00	1,195	-
S-3	5,749	266	June 17:00	1,619	-
S-4	5,372	249	July 16:00	1,126	-
S-6	7,057	327	June 17:00	3,418	-
Staff Area 445	30,049	1,391	July 18:00	7,838	-
X-O	5,757	267	June 17:00	1,639	-
	Total:	6,439		Total:	.00

SYSTEM SIZING SUMMARY

System: Central Plant office Fan
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 19, 2006
Page: 1

TABLE 1. SIZING DATA (COOLING)

Total Coil Load	5,940 BTU/hr	Load Occurs	August 18:00
Sensible Coil Load	5,007 BTU/hr	Outdoor Db/Wb	91.6/79.2 F
Total Zone Sensible	4,531 BTU/hr	Coil Conditions:	
Supply Temperature	55.0 F	Entering Db/Wb	77.1/64.1 F
Supply Air (Actual)	210 CFM	Leaving Db/Wb	55.0/54.4 F
Supply Air (Standard)	210 CFM	Apparatus Dewpoint	53.8 F
Ventilation Air	20 CFM	Bypass Factor	0.050
Direct Exhaust Air	0 CFM	Resulting Zone RH	48. %
Reheat Required	0 BTU/hr		
		Total Coil Load	0.49 Ton
Floor Area	224 sqft	Sensible Coil Load	0.42 Ton
Overall U-Value	0.080 BTU/hr/sqft/F	SQFT/Ton	452.53
Vent Air	0.09 CFM/sqft	Cooling	26.52 BTU/hr/sqft
Vent Air	0.00 CFM/Person	Cooling	0.94 CFM/sqft

TABLE 2. SIZING DATA (HEATING)

Heating Coil Load	3,713 BTU/hr	Heating	16.58 BTU/hr/sqft
Ventilation Load	864 BTU/hr	Heating	0.94 CFM/sqft
Total Zone Load	2,849 BTU/hr	Floor Area	224 sqft
Ventilation Airflow	20 CFM	Overall U-Value	0.080
Supply Airflow	210 CFM	Vent Air	0.09 CFM/sqft
		Vent Air	0.00 CFM/Person

TABLE 3. INPUT DATA (WEATHER)

Location	New Orleans, Louisiana		
Data Source	User Defined	Summer Dry-Bulb	95.0 F
Latitude	30.0 Degree	Coincident Wet-Bulb	80.0 F
Elevation	4.0 ft	Daily Range	16.0 F
Atmospheric Clearness #	0.90	Winter Dry-Bulb	30.0 F

TABLE 4. INPUT (HVAC SYSTEM)

System Name	Central Plant office Fan	THERMOSTAT SETPOINTS	
System Type	Clg and Warm Air Ht	Cooling (Occ.)	75.0 F
System Start	6:00	Cooling (Unocc.)	80.0 F
Duration	24 hrs	Heating	70.0 F
SIZING SPECIFICATIONS		RETURN AIR PLENUM	No
Supply	55.0 F	FAN	
Ventilation	20 CFM	Configuration	Blow-Thru
Exhaust	0.00 CFM	Static Pressure	0.75 in. wg.
FACTORS			
Coil Bypass	0.050		
Safety (Sens)	5 %		
Safety (Latent)	5 %		
Heating Safety	5 %		

TABLE 5. TOP TEN COOLING COIL LOADS

	Time	Sensible Ton	Total Ton		Time	Sensible Ton	Total Ton
1)	August 18:00	0.42	0.49	6)	June 18:00	0.41	0.49
2)	August 17:00	0.42	0.49	7)	June 17:00	0.41	0.49
3)	July 18:00	0.42	0.49	8)	August 19:00	0.41	0.49
4)	July 17:00	0.42	0.49	9)	July 16:00	0.41	0.49
5)	July 19:00	0.41	0.49	10)	August 16:00	0.41	0.49

SYSTEM SIZING SUMMARY

System: Central Plant office Fan
Location: New Orleans, Louisiana
Prepared by: Luvien T Vivien Jr

Block Load 3.05
April 19, 2006

TABLE 6. ZONE SIZING DATA

Zone Name	Max. Cooling Sensible (BTU/hr)	Design Airflow Rate (CFM)	Design Time	Max. Heating Load (BTU/hr)	Design Flow Rate (CFM)
Office	4,542	210	July 19:00	2,849	-
	Total:	210		Total:	.00

K-2 Atrium Smoke Removal Calculations

Smoke System Activation Time:

The following formulas are from NFPA-92B equation #3. Based on experimental data the approximate activation time of the smoke control system initiation devices can be approximated. The purpose of determining the response time of the activation system is to determine the fire size. Since the building is protected by an automatic sprinkler system, it can be assumed that the fire size at sprinkler will not change.

T=	144	temperature increase to activate smoke system in seconds
H=	55	ceiling height above fire surface in feet
Q=	1000	heat release rate of fire in BTU/s

Y=T*(H^(5/3))/(Q^(2/3))= 1145.425836

X=((4.6EE10^-4)*Y^2)+((2.7EE10^-15)*Y^6)= 6701.213952

t=(X*H^(4/3))/(Q^(1/3))= 140164.1895 seconds

Based on this response time and Figure C-3, a 1000 BTU/s fire size must be assumed for the atrium fire size.

Smoke Layer Depth at Detector Activation:

The following formulas are based on NFPA-92B equations #8 and #9.
The Zd indicates the level of the smoke at the time of initial indication. Hmax is the maximum ceiling height that a smoke plume of fire size Qc can reach without stratifying.

Qc=.7*Q=	700	convective heat release rate in BTU/s (Q=1000 BTU/s)
To=	50	difference between temperature at fire surface and ceiling in degrees F
A=	320	cross-sectional area of atrium in ft^2

Hmax=74*(Qc^(2/5))*(To^(-3/5))= 97.24984843 feet **TRUE** smoke will not stratify prior to reaching ceiling

Axisymmetric Plume Airflow Requirements:

Based on equation #14 and #16 in NFPA-92B as calculated below, the smoke generation rate of a 1000 BTU/s fire in the atrium can be approximated. The amount of exhaust airflow required is equal to the smoke generation rate.

Z=	50	height above the fuel in feet

z1=.533*Qc^(2/5)= 7.3243051 limiting elevation of flame height in feet

m=.022*Qc^(1/3)*Z^(5/3)+(.0042*Qc)= 135.4978245 lb/sec

V=60*m/p= **108398.26 cfm**

K-3 Building Outside Air & Exhaust Air for Build Balance

Prepared by:

Lucien T. Vivien, Jr. & Associates, Inc.

(2 pages follow)

JOB: Jackson Barracks 141 Readness Center **DATE:**

O/A CALCULATIONS PER ASHRAE 62-2004

UNIT	occupancy	SQ FT	# PEOPLE	CFM/PERSON	CFM/SQFT	TOTAL O/A	ACTUAL CFM/PER
			FIRST FLOOR				
AHU 1-1	office	10850	15	5	0.05	618	41
AHU 1-2	classroom	6650	100	10	0.12	1798	18
AHU 1-3	classroom	6481	85	10	0.12	1628	19
AHU 1-4	office	2066	10	5	0.05	153	15
AHU 1-5	assembly	7514	600	7.8	0.06	5131	9
AHU 2-1	office	1200	4	5	0.05	500	125
AHU 2-2	office	6328	192	5	0.05	1276	7
AHU 2-3	office	7150	44	5	0.05	578	13
AHU 2-4	office	7965	360	5	0.05	2198	6
AHU 3-1	office	5506	24	5	0.05	395	16
AHU 3-2	office	5549	24	5	0.05	397	17
AHU 3-3	office	5506	24	5	0.05	395	16
AHU 3-4	office	5549	24	5	0.05	397	17
AHU 4-1	office	5506	24	5	0.05	395	16
AHU 4-2	office	6562	24	5	0.05	448	19
						SUB TOT	**16308 CFM**

OCCUPANCY			DEFAULT	
ASSEMBLY	7.8	CFM/PERSON	8	CFM/PERSON
	0.06	CFM/SQFT		
CLASSROOM	10	CFM/PERSON	13	CFM/PERSON
	0.12	CFM/SQFT		
OFFICE	5	CFM/PERSON	17	CFM/PERSON
	0.05	CFM/SQFT		
CORRIDOR	0	CFM/PERSON		
	0.05	CFM/SQFT		

Job: Jackson Barracks 141 Readness Center

Exhaust air Calculation

Floor	Room	Ft^2	CFM/ft^2	Fixtures	CFM/Fixture	Exhaust air/ft^2	Exhaust air/fixture
1st	Janitor 114	82	1	0	0	82	0
	Men RR 104	260	0	8	50	0	400
	Women RR 105	260	0	8	50	0	400
						0	0
2nd	Men RR 204	260	0	4	50	0	200
	Women RR 205	260	0	4	50	0	200
	Janitor 228		1	0	0	0	0
	Vault 212	1200	1	0	0	1200	0
	Women Shower 217	736	1	0	50	736	0
	Women Lockers 217	965	1	0	50	965	0
	Women Toilet 216	435	0	8	50	0	400
	Men Shower 219	630	1	0	50	630	0
	Men Lockers 219	1260	1	0	50	1260	0
	Men Toilet 218	600	0	6	50	0	300
	Men Shower 221	690	1	0	50	690	0
	Men Lockers 221	4340	1	0	50	4340	0
	Men Toilet 220	740	0	8	50	0	400
	Janitor 224	45	1	0	0	45	0
						0	0
3rd	Men RR 304	260	0	4	50	0	200
	Women RR 305	260	0	4	50	0	200
						0	0
4th	Men RR 404	204	0	2	50	0	100
	Women RR 405	204	0	2	50	0	100
					Sub total	9948	2900
					Total exhaust air:		12848

141st Building Air Balance

Min outside air (Total exhaust air)* 1.2 = 15418

Central Plant exhaust **ASHRAE 15-2004**

Refrigerant ventilation rate

$Q=100 * G^{0.5}$ G= 1989 lbs of Refrig

Q= 4460 CFM

General ventilation

ventilation rate 0.5 CFM/ft^2

area 3600 ft^2

Total General Ventilation 1800 CFM

K-4 Electric Heat Calculations

Prepared by:

Lucien T. Vivien, Jr. & Associates, Inc.

(1 page follows)

Job:	Jackson Barracks 141 Readness Center														
Electric Heating Coil Sizing Chart															
Heater	Heater Location	CFM	O/A CFM	O/A T	R/A T	O/A %	R/A %	O/A °F	R/A °F	ΔT	CALC KW	USE KW	ACTUAL ΔT	MIX AIR T	ACTUAL LA T
EDH-1	AHU 1-1	3744	618	55	70	0.16	0.84	9.07	58.45	27.47	32.55	32.00	27.01	67.53	94.54
EDH-4	AHU 1-2	7574	1798	55	70	0.24	0.76	13.06	53.38	28.56	68.45	12.00	5.01	66.44	71.45
EDH-5	AHU 1-3	4600	1628	55	70	0.35	0.65	19.46	45.23	30.31	44.12	120.00	82.44	64.69	147.13
EDH-6	AHU 1-4	1450	153	55	70	0.11	0.89	5.87	62.60	26.59	12.20	6.00	13.08	68.41	81.49

K-5 Pump Calculations

Prepared by:

Lucien T. Vivien, Jr. & Associates, Inc.

(1 page follows)

141st RC CHILLED WATER PUMP CALCULATIONS

CHILLER PD	0 ft H_2O	FLOW RATE	771.6 GPM
LARGEST COIL PD	18.7 ft H_2O		
CONTROL VALVE PD	15 ft H_2O		
PIPE PD	37.5 ft H_2O	PIPE LENGTH	1200 FT
			0.25 Unions Elbows and fittings
			2.5 PD/100FT
SUBTOTAL HEAD	71.20		
S.F. 10%	10%		
TOTAL HEAD	78.32 FT HEAD		
TOTAL	**GPM**	**FT HEAD**	
	771.6	**78.3**	

141st RC CHILLED WATER DEMAND		
Unit	GPM	ΔP
AHU 1-1	21.6	5.7
AHU 1-2	42.4	11.6
AHU 1-3	24.8	6.6
AHU 1-4	7.2	1.4
AHU 1-5	104	13.8
AHU 2-1	2.8	1.1
AHU 2-2	6.7	0.8
AHU 2-3	28.2	6.4
AHU 2-4	50.5	18.7
AHU 3-1	28.4	6.5
AHU 3-2	59.1	16
AHU 3-3	55.5	9.9
AHU 3-4	28.8	6.7
AHU 4-1	27.1	7.7
AHU 4-2	37.7	11.7
ERU-1	246.8	6
Total	771.6	

SECONDARY CHILLED WATER PUMP CALCULATIONS

CHILLER PD	0 ft H_2O	FLOW RATE	1290 GPM *
LARGEST COIL PD	0 ft H_2O		
CONTROL VALVE PD	0 ft H_2O		
PIPE PD	87.5 ft H_2O	PIPE LENGTH	2800 FT
			0.25 Unions Elbows and fittings
			2.5 PD/100FT
SUBTOTAL HEAD	87.50		
S.F.	10%		
TOTAL HEAD	96.25 FT HEAD		
TOTAL	**GPM**	**FT HEAD**	
	1290	**96.3**	

SECONDARY CHILLED WATER LOOP FOR 12°F ΔT		
	Tons	GPM
141st RC	325	650
61st RC	200	400
Dining Hall	120	240
Future Museum	300	600
Total	945	1890

*Secondary pump size excluding future expansion

PRIMARY CHILLED WATER PUMP CALCULATIONS

CHILLER PD	13 ft H_2O	FLOW RATE	720 GPM
AIR SEPARATOR	8 ft H_2O		
CONTROL VALVE PD	0 ft H_2O		
PIPE PD	7.8125 ft H_2O	PIPE LENGTH	250 FT
			0.25 Unions Elbows and fittings
			2.5 PD/100FT
SUBTOTAL HEAD	28.81		
S.F.	10%		
TOTAL HEAD	31.69 FT HEAD		
TOTAL	**GPM**	**FT HEAD**	
	720	**31.7**	

CONDENSER WATER PUMP CALCULATIONS

Tower PD	10 ft H_2O	FLOW RATE	900 GPM
CHILLER PD	10 ft H_2O		
CONTROL VALVE PD	10 ft H_2O		
PIPE PD	16.875 ft H_2O	PIPE LENGTH	450 FT
			0.25 Unions Elbows and fittings
			3 PD/100FT
SUBTOTAL HEAD	46.88		
S.F.	10%		
TOTAL HEAD	51.56 FT HEAD		
TOTAL	**GPM**	**FT HEAD**	
	900	**51.6**	

K-6 Unit Heaters Calculations

Prepared by:

Lucien T. Vivien, Jr. & Associates, Inc.

(1 page follows)

ELECTRIC UNIT HEATER SIZE- Jackson Barracks 141st Building

Design to maintain mechanical room 213 above 40 F

$Q=AU\Delta T$

A=	1910	ft^2
U=	0.1	
ΔT=	20	F
conversion	3413	btu/kw
Q=	1.12	kw

Design to maintain sprinkler/Attaic 141 st Building above 40 F

wall

$Q_w=AU\Delta T$

A=	56064	ft^2
U=	0.08	
ΔT=	20	F
conversion	3413	btu/kw
Q_w=	26.28	kw

air change 1 per hr

V/60

V=	448500	ft^3
	7475	cfm

$Q_A=1.08(cfm)\Delta T$

cfm=	7475	
ΔT=	20	F
conversion	3413	btu/kw
Q_A=	47.31	kw

Total Q

$Q_T=Q_W+Q_A$

Q_w=	26.28	kw
Q_A=	47.31	kw
Q_T=	73.59	kw

Design to maintain Centrl Plant above 40 F

wall

$Q_w=AU\Delta T$

A=	9752	ft^2
U=	0.08	
ΔT=	20	F
conversion	3413	btu/kw
Q_w=	4.57	kw

air change 1 per hr

V/60

V=	156000	ft^3
	2600	cfm

$Q_A=1.08(cfm)\Delta T$

cfm=	2600	
ΔT=	20	F
conversion	3413	btu/kw
Q_A=	16.45	kw

Total Q

$Q_T=Q_W+Q_A$

Q_w=	4.57	kw
Q_A=	16.45	kw
Q_T=	21.03	kw

L. Life Cycle Cost Analysis (HVAC)

L-1 Preliminary Baseline Energy Analysis

Index:

1. Executive Summary
2. Lifecycle Cost Summary
3. Estimated Construction Cost
4. Estimated Maintenance Cost
5. Energy Analysis – Base Building meeting minimum ASHRAE requirements
6. Energy Analysis – Building meeting SPiRiT energy savings

Prepared by:

Lucien T. Vivien, Jr. & Associates, Inc.

(254 pages follow)

Executive Summary

A limited life cycle cost analysis was performed to compare a baseline building to our proposed building meeting the SPIRIT criteria identified in our design package. The analysis performed was a simple payback type with a 20 year length assuming a 4.5% discount rate.

The two cases compared were as follows:

Base building meeting minimum ASHRAE requirements

In this case the building was modeled to conform to ASHRAE 90.1, 2004 edition. The lighting wattage and building envelope followed the ASHRAE tabled values. The central plant consisted of air-cooled chillers with primary-secondary pumping. The building air distribution system was modeled around VAV units with central heat recovery.

Building meeting SPIRIT energy savings

In this case the increased energy efficiency of our building as identified in the SPIRIT report was used. The Central Plant consists of VFD controlled water cooled centrifugal chillers with VFD controlled cooling towers. The building air systems are similar to the base case except that more efficient fans, controls and heat recovery are used. The building glass, walls, roof and lighting also employ higher efficiency materials and technologies. The bottom line is a 26% energy savings over the bas building.

Even though the base case cost $600,000 less than the SPIRIT case, the lower annual operating cost of the SPIRIT building results in a 4.4 year payback. Enclosed is a summary of the lifecycle cost summary.

Life Cycle Cost Summary

Lifecycle Summary

Project: Jackson Barrack 141st Readiness Center
Prepared By: L. T. Vivien, Jr. & Associates, Inc.

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Lifecycle Study

Type of Analysis	Simple Payback Analysis	
Length of Analysis	20	yrs
Discount Rate	4.50	%

Table 1. Executive Summary

Economic Criteria	Best Design Case for Each Criteria	Value ($)
Payback Analysis	Building meeting Spirit energy savings	-
Lowest Annual Operating Cost	Building meeting Spirit energy savings	$166,450
Lowest First Cost	Base building meeting minimum ASHRAE requirements	$2,600,000

Table 2. Design Cases Ranked by First Cost

Design Case Name	Design Case Short Name	Total Present Worth ($)	Annual Operating Cost ($/yr)	First Cost ($)
Base building meeting minimum ASHRAE requirements		$8,952,547	$301,986	$2,600,000
Building meeting Spirit energy savings		$6,701,425	$166,450	$3,200,000

Table 3. Incremental Analysis Data

Challenger	Base Case	Additional First Cost ($)	Payback Period (yrs)
[Winner]		$600,000	4.4

Study Inputs

Study Title	Lifecycle Study	
Study Description :		
Type of Analysis	Simple Payback Analysis	
Base Year	1	
Currency Symbol	$	
Length of Analysis	20	yrs
Discount Rate	4.50	%

Design Case Inputs

Project: Jackson Barrack 141st Readiness Center
Prepared By: L. T. Vivien, Jr. & Associates, Inc.

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Type of Analysis	Simple Payback Analysis	
Length of Analysis	20	yrs
Income Taxes	Not Considered	

General Information :

Design Case Name ..... Base building meeting minimum ASHRAE requirements
Design Case Short Name .....
Description :

Investment Costs :

Initial Investment Cost ($)	$2,600,000
Percent Financed	0 %
Term Of Loan (Years)	1
Annual Interest Rate	0.00 %
Salvage Value ($)	$0

Annual Operating Costs :

Annual Energy Cost ($)	$125,993
Energy Cost Escalation Rate	5.00 %
Annual Maintenance Cost ($)	$50,000
Maintenance Cost Escalation Rate	5.00 %

Design Case Inputs

Type of Analysis ..... Simple Payback Analysis
Length of Analysis ..... 20 yrs
Income Taxes ..... Not Considered

General Information :

Design Case Name ..... Building meeting Spirit energy savings
Design Case Short Name ....
Description :

Investment Costs :

Initial Investment Cost ($)	$3,200,000
Percent Financed	0 %
Term Of Loan (Years)	1
Annual Interest Rate	0.00 %
Salvage Value ($)	$0

Annual Operating Costs :

Annual Energy Cost ($)	$86,450
Energy Cost Escalation Rate	5.00 %
Annual Maintenance Cost ($)	$80,000
Maintenance Cost Escalation Rate	5.00 %

Analysis Details

Project: Jackson Barrack 141st Readiness Center
Prepared By: L. T. Vivien, Jr. & Associates, Inc.

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Lifecycle Study

Type of Analysis	Simple Payback Analysis	
Length of Analysis	20	yrs
Discount Rate	4.50	%

1A. Summary of Results

Base Case	Base building meeting minimum ASHRAE requirements []
Challenger **[Winner]**	Building meeting Spirit energy savings []
[] Total Present Worth ($)	$8,952,547
[] Total Present Worth ($)	$6,701,425
Net Present Worth Savings ($)	$2,251,122
Payback Period (yrs)	4.4 years

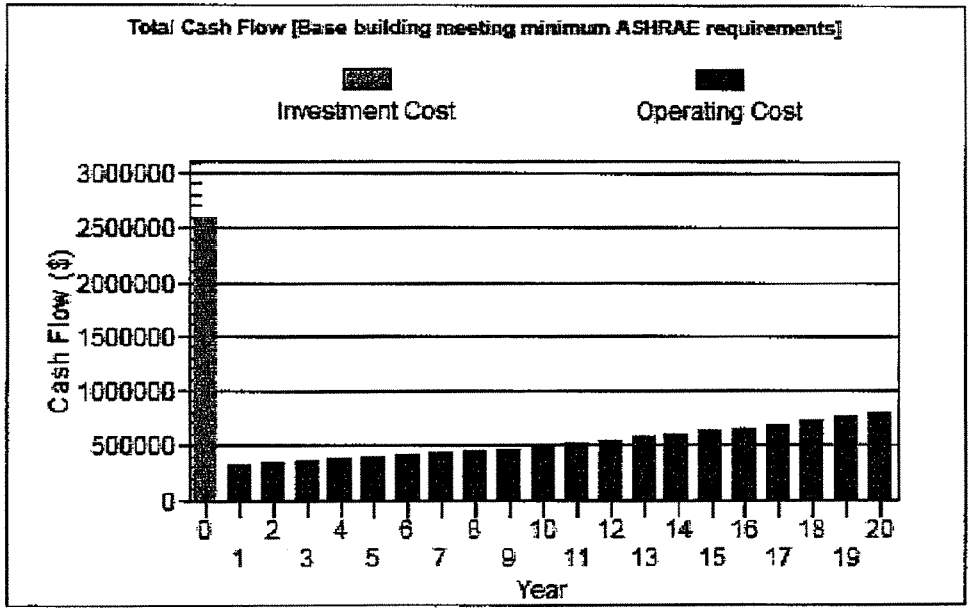
1B. Comparative Analysis Details

		Cash Flow (Present Worth $)			SIR and Payback Calculation (Present Worth $)				
Year	Date	[] Cash Flow ($)	[] Cash Flow ($)	Net Present Worth Savings ($)	Operating Cost Savings ($)	Cumulative Operating Cost Savings ($)	Additional Investment Cost ($)	Cumulative Additional Investment Cost ($)	Year-End SIR
0	Initial	2,600,000	3,200,000	-600,000	0	0	600,000	600,000	0.000
1	1	303,431	167,246	136,184	136,184	136,184	0	600,000	0.227
2	2	304,883	168,047	136,836	136,836	273,021	0	600,000	0.455
3	3	306,342	168,851	137,491	137,491	410,511	0	600,000	0.684
4	4	307,807	169,659	138,149	138,149	548,660	0	600,000	0.914
5	5	309,280	170,470	138,810	138,810	687,470	0	600,000	1.146
6	6	310,760	171,286	139,474	139,474	826,944	0	600,000	1.378
7	7	312,247	172,106	140,141	140,141	967,085	0	600,000	1.612
8	8	313,741	172,929	140,812	140,812	1,107,896	0	600,000	1.846
9	9	315,242	173,756	141,485	141,485	1,249,382	0	600,000	2.082
10	10	316,750	174,588	142,162	142,162	1,391,544	0	600,000	2.319
11	11	318,266	175,423	142,843	142,843	1,534,387	0	600,000	2.557
12	12	319,789	176,262	143,526	143,526	1,677,913	0	600,000	2.797
13	13	321,319	177,106	144,213	144,213	1,822,126	0	600,000	3.037
14	14	322,856	177,953	144,903	144,903	1,967,029	0	600,000	3.278
15	15	324,401	178,805	145,596	145,596	2,112,625	0	600,000	3.521
16	16	325,953	179,660	146,293	146,293	2,258,917	0	600,000	3.765
17	17	327,513	180,520	146,993	146,993	2,405,910	0	600,000	4.010
18	18	329,080	181,384	147,696	147,696	2,553,606	0	600,000	4.256
19	19	330,654	182,251	148,403	148,403	2,702,009	0	600,000	4.503
20	20	332,236	183,123	149,113	149,113	2,851,122	0	600,000	4.752
Totals		8,952,547	6,701,425	2,251,122	2,851,122		600,000		

Cash Flow Details

Lifecycle Study

Type of Analysis	Simple Payback Analysis	
Length of Analysis	20	yrs
Discount Rate	4.50	%



1A. Component Cash Flows [Base building meeting minimum ASHRAE requirements], Actual Value

Year	Date	Cash Investment ($)	Loan Principal ($)	Loan Interest ($)	Total Investment Cost ($)	Annual Operating Cost ($)	Non-Annual Operating Cost ($)	Total Operating Cost ($)	Total Cash Flow ($)
0	Initial	2,600,000	0	0	2,600,000	0	0	0	2,600,000
1	1	0	0	0	0	317,085	0	317,085	317,085
2	2	0	0	0	0	332,940	0	332,940	332,940
3	3	0	0	0	0	349,587	0	349,587	349,587
4	4	0	0	0	0	367,066	0	367,066	367,066
5	5	0	0	0	0	385,419	0	385,419	385,419
6	6	0	0	0	0	404,690	0	404,690	404,690

Cash Flow Details

Year	Date	Cash Investment ($)	Loan Principal ($)	Loan Interest ($)	Total Investment Cost ($)	Annual Operating Cost ($)	Non-Annual Operating Cost ($)	Total Operating Cost ($)	Total Cash Flow ($)
7	7	0	0	0	0	424,925	0	424,925	424,925
8	8	0	0	0	0	446,171	0	446,171	446,171
9	9	0	0	0	0	468,479	0	468,479	468,479
10	10	0	0	0	0	491,903	0	491,903	491,903
11	11	0	0	0	0	516,499	0	516,499	516,499
12	12	0	0	0	0	542,323	0	542,323	542,323
13	13	0	0	0	0	569,440	0	569,440	569,440
14	14	0	0	0	0	597,912	0	597,912	597,912
15	15	0	0	0	0	627,807	0	627,807	627,807
16	16	0	0	0	0	659,198	0	659,198	659,198
17	17	0	0	0	0	692,157	0	692,157	692,157
18	18	0	0	0	0	726,765	0	726,765	726,765
19	19	0	0	0	0	763,104	0	763,104	763,104
20	20	0	0	0	0	801,259	0	801,259	801,259
Totals		2,600,000	0	0	2,600,000	10,484,729	0	10,484,729	13,084,729

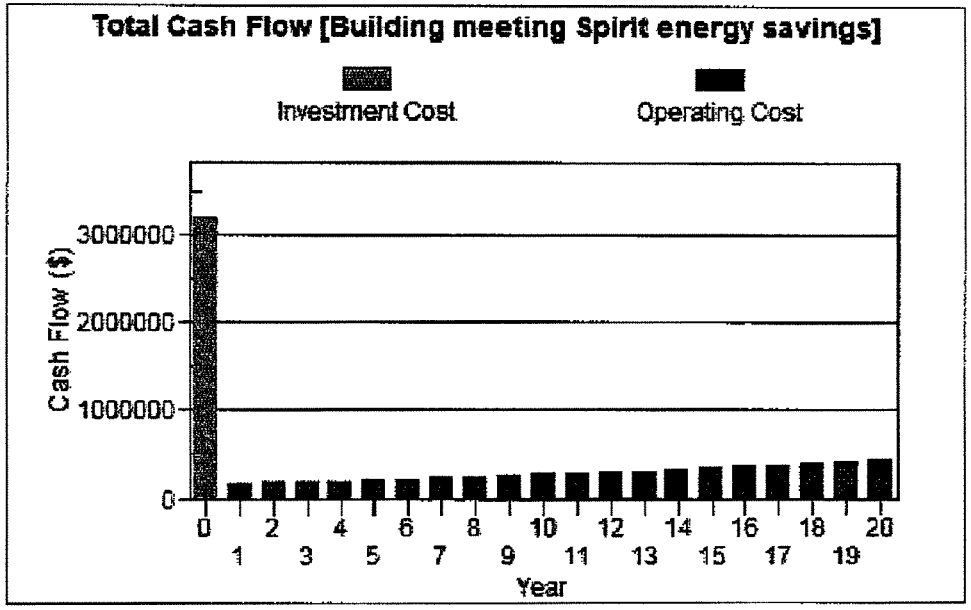
1B. Present Worth Cash Flows [Base building meeting minimum ASHRAE requirements]

Year	Date	Total Investment Cost ($)	Total Operating Cost ($)	Total Present Worth ($)
0	Initial	2,600,000	0	2,600,000
1	1	0	303,431	303,431
2	2	0	304,883	304,883
3	3	0	306,342	306,342
4	4	0	307,807	307,807
5	5	0	309,280	309,280
6	6	0	310,760	310,760
7	7	0	312,247	312,247
8	8	0	313,741	313,741
9	9	0	315,242	315,242
10	10	0	316,750	316,750
11	11	0	318,266	318,266
12	12	0	319,789	319,789
13	13	0	321,319	321,319
14	14	0	322,856	322,856
15	15	0	324,401	324,401
16	16	0	325,953	325,953
17	17	0	327,513	327,513

Cash Flow Details

Year	Date	Total Investment Cost ($)	Total Operating Cost ($)	Total Present Worth ($)
18	18	0	329,080	329,080
19	19	0	330,654	330,654
20	20	0	332,236	332,236
Totals		2,600,000	6,352,550	8,952,550

Cash Flow Details



2A. Component Cash Flows [Building meeting Spirit energy savings], Actual Value

Year	Date	Cash Investment ($)	Loan Principal ($)	Loan Interest ($)	Total Investment Cost ($)	Annual Operating Cost ($)	Non-Annual Operating Cost ($)	Total Operating Cost ($)	Total Cash Flow ($)
0	Initial	3,200,000	0	0	3,200,000	0	0	0	3,200,000
1	1	0	0	0	0	174,773	0	174,773	174,773
2	2	0	0	0	0	183,511	0	183,511	183,511
3	3	0	0	0	0	192,687	0	192,687	192,687
4	4	0	0	0	0	202,321	0	202,321	202,321
5	5	0	0	0	0	212,437	0	212,437	212,437
6	6	0	0	0	0	223,059	0	223,059	223,059
7	7	0	0	0	0	234,212	0	234,212	234,212
8	8	0	0	0	0	245,922	0	245,922	245,922
9	9	0	0	0	0	258,219	0	258,219	258,219
10	10	0	0	0	0	271,130	0	271,130	271,130
11	11	0	0	0	0	284,686	0	284,686	284,686
12	12	0	0	0	0	298,920	0	298,920	298,920
13	13	0	0	0	0	313,866	0	313,866	313,866

Cash Flow Details

Year	Date	Cash Investment ($)	Loan Principal ($)	Loan Interest ($)	Total Investment Cost ($)	Annual Operating Cost ($)	Non-Annual Operating Cost ($)	Total Operating Cost ($)	Total Cash Flow ($)
14	14	0	0	0	0	329,560	0	329,560	329,560
15	15	0	0	0	0	346,038	0	346,038	346,038
16	16	0	0	0	0	363,339	0	363,339	363,339
17	17	0	0	0	0	381,506	0	381,506	381,506
18	18	0	0	0	0	400,582	0	400,582	400,582
19	19	0	0	0	0	420,611	0	420,611	420,611
20	20	0	0	0	0	441,641	0	441,641	441,641
Totals		3,200,000	0	0	3,200,000	5,779,020	0	5,779,020	8,979,020

2B. Present Worth Cash Flows [Building meeting Spirit energy savings]

Year	Date	Total Investment Cost ($)	Total Operating Cost ($)	Total Present Worth ($)
0	Initial	3,200,000	0	3,200,000
1	1	0	167,246	167,246
2	2	0	168,047	168,047
3	3	0	168,851	168,851
4	4	0	169,659	169,659
5	5	0	170,470	170,470
6	6	0	171,286	171,286
7	7	0	172,106	172,106
8	8	0	172,929	172,929
9	9	0	173,756	173,756
10	10	0	174,588	174,588
11	11	0	175,423	175,423
12	12	0	176,262	176,262
13	13	0	177,106	177,106
14	14	0	177,953	177,953
15	15	0	178,805	178,805
16	16	0	179,660	179,660
17	17	0	180,520	180,520
18	18	0	181,384	181,384
19	19	0	182,251	182,251
20	20	0	183,123	183,123
Totals		3,200,000	3,501,425	6,701,425

Estimated Construction Cost

Base building meeting minimum ASHRAE requirements

Building connected load = 387 tons x $2,000/ton = $774,000
Plant capacity (air cooled) = 900 tons x $2,000/ton = $1,800,000
Total Cost = $2,574,000 round up to **$2,600,000**

Building meeting Spirit energy savings

Building connected load = 387 tons x $2,500/ton = $967,500
Plant capacity (water cooled) = 900 tons x $2,500/ton = $2,250,000
Total Cost = $3,217,500 round down to **$3,200,000**

Estimated Maintenance Cost

Base building meeting minimum ASHRAE requirements

$50,000

Building meeting Spirit energy savings

$80,000

Jackson Barracks 141st Field Artillery Battalion Readiness Center

Energy Analysis – Base Building meeting minimum ASHRAE requirements

May 3, 2006

35% Design Submittal

Lucien T. Vivien, Jr. & Associates, Inc.

Design Weather Parameters & MSHGs

Design Parameters:

City Name	New Orleans IAP	
Location	Louisiana	
Latitude	30.0	Deg.
Longitude	90.3	Deg.
Elevation	30.0	ft
Summer Design Dry-Bulb	95.0	°F
Summer Coincident Wet-Bulb	80.0	°F
Summer Daily Range	15.5	°F
Winter Design Dry-Bulb	30.0	°F
Winter Design Wet-Bulb	25.3	°F
Atmospheric Clearness Number	0.90	
Average Ground Reflectance	0.20	
Soil Conductivity	0.800	BTU/(hr-ft-°F)
Local Time Zone (GMT +/- N hours)	6.0	hours
Consider Daylight Savings Time	No	
Simulation Weather Data	New Orleans (TMY)	
Current Data is	User Modified	
Design Cooling Months	January to December	

Design Day Maximum Solar Heat Gains

(The MSHG values are expressed in BTU/(hr-ft²))

Month	N	NNE	NE	ENE	E	ESE	SE	SSE	S
January	21.9	21.9	24.8	102.0	162.3	206.8	227.3	224.9	217.6
February	25.3	25.3	60.7	136.4	191.4	216.2	223.3	205.7	192.3
March	28.8	32.9	106.3	161.5	205.2	217.5	199.9	168.9	149.1
April	32.1	69.8	138.8	183.1	199.5	196.0	163.8	118.4	92.6
May	35.4	98.1	156.9	190.8	196.0	176.1	135.1	81.4	57.8
June	45.7	109.5	162.5	190.7	190.3	167.0	121.4	66.8	47.8
July	36.7	100.3	155.0	185.8	189.9	173.1	130.5	78.0	56.6
August	33.6	71.5	134.9	175.4	194.1	189.5	156.9	113.5	89.8
September	29.8	29.8	100.8	156.1	192.5	207.8	191.5	163.1	145.4
October	26.0	26.0	63.8	128.8	181.3	213.1	212.5	197.7	187.1
November	22.2	22.2	30.2	94.1	162.5	203.5	223.5	220.6	214.5
December	20.3	20.3	20.3	85.6	151.0	197.2	225.2	228.2	222.4
Month	**SSW**	**SW**	**WSW**	**W**	**WNW**	**NW**	**NNW**	**HOR**	**Mult**
January	223.8	227.0	207.4	165.2	94.9	30.5	21.9	166.9	1.00
February	204.1	220.4	220.9	187.1	135.3	65.5	25.3	202.3	1.00
March	168.7	200.3	216.8	200.4	166.8	106.4	29.3	231.5	1.00
April	118.4	163.8	196.0	199.5	183.1	138.8	69.8	245.0	1.00
May	81.1	134.8	176.7	194.8	190.4	157.2	99.2	249.2	1.00
June	67.2	121.7	166.2	191.5	191.1	162.2	108.5	248.3	1.00
July	79.0	131.5	171.2	192.4	187.5	154.6	97.4	246.1	1.00
August	114.3	157.9	188.8	192.5	177.1	135.1	69.7	240.3	1.00
September	164.0	192.6	207.6	195.4	153.7	99.8	31.8	223.7	1.00
October	199.7	216.0	207.8	183.9	131.7	57.6	26.0	198.4	1.00
November	221.5	223.6	203.5	159.2	100.4	25.1	22.2	165.8	1.00
December	228.2	225.2	197.1	151.1	85.6	20.3	20.3	149.8	1.00

Mult. = User-defined solar multiplier factor.

Cooling Design Temperature Profiles

Jackson Barracks
L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:23PM

Location: New Orleans IAP, Louisiana

(Dry and Wet Bulb temperatures are expressed in °F)

Hr	January		February		March		April		May		June	
	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB
0000	64.3	63.8	66.3	65.8	71.3	70.4	74.3	72.6	78.3	74.7	81.3	76.8
0100	63.5	63.0	65.5	65.0	70.5	70.0	73.5	72.3	77.5	74.5	80.5	76.6
0200	62.7	62.2	64.7	64.2	69.7	69.2	72.7	72.1	76.7	74.3	79.7	76.4
0300	62.1	61.6	64.1	63.6	69.1	68.6	72.1	71.6	76.1	74.1	79.1	76.3
0400	61.7	61.2	63.7	63.2	68.7	68.2	71.7	71.2	75.7	74.0	78.7	76.2
0500	61.5	61.0	63.5	63.0	68.5	68.0	71.5	71.0	75.5	74.0	78.5	76.1
0600	61.8	61.3	63.8	63.3	68.8	68.3	71.8	71.3	75.8	74.0	78.8	76.2
0700	62.6	62.1	64.6	64.1	69.6	69.1	72.6	72.1	76.6	74.2	79.6	76.4
0800	64.0	63.5	66.0	65.5	71.0	70.3	74.0	72.5	78.0	74.6	81.0	76.8
0900	66.0	64.5	68.0	66.6	73.0	70.9	76.0	73.0	80.0	75.2	83.0	77.3
1000	68.3	65.2	70.3	67.3	75.3	71.6	78.3	73.7	82.3	75.8	85.3	77.9
1100	71.0	66.1	73.0	68.2	78.0	72.3	81.0	74.4	85.0	76.5	88.0	78.5
1200	73.4	66.9	75.4	68.9	80.4	73.0	83.4	75.1	87.4	77.1	90.4	79.1
1300	75.3	67.5	77.3	69.5	82.3	73.5	85.3	75.6	89.3	77.6	92.3	79.6
1400	76.5	67.9	78.5	69.9	83.5	73.9	86.5	75.9	90.5	77.9	93.5	79.9
1500	77.0	68.0	79.0	70.0	84.0	74.0	87.0	76.0	91.0	78.0	94.0	80.0
1600	76.5	67.9	78.5	69.9	83.5	73.9	86.5	75.9	90.5	77.9	93.5	79.9
1700	75.5	67.5	77.5	69.5	82.5	73.6	85.5	75.6	89.5	77.6	92.5	79.6
1800	73.7	67.0	75.7	69.0	80.7	73.1	83.7	75.1	87.7	77.2	90.7	79.2
1900	71.7	66.3	73.7	68.4	78.7	72.5	81.7	74.6	85.7	76.7	88.7	78.7
2000	69.7	65.7	71.7	67.8	76.7	72.0	79.7	74.1	83.7	76.1	86.7	78.2
2100	68.0	65.1	70.0	67.2	75.0	71.5	78.0	73.6	82.0	75.7	85.0	77.8
2200	66.5	64.6	68.5	66.8	73.5	71.0	76.5	73.2	80.5	75.3	83.5	77.4
2300	65.2	64.2	67.2	66.4	72.2	70.7	75.2	72.8	79.2	75.0	82.2	77.1

Hr	July		August		September		October		November		December	
	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB
0000	82.3	76.8	82.3	76.8	80.3	75.8	76.3	73.6	70.3	69.8	65.3	64.8
0100	81.5	76.6	81.5	76.6	79.5	75.6	75.5	73.4	69.5	69.0	64.5	64.0
0200	80.7	76.5	80.7	76.5	78.7	75.4	74.7	73.2	68.7	68.2	63.7	63.2
0300	80.1	76.3	80.1	76.3	78.1	75.2	74.1	73.0	68.1	67.6	63.1	62.6
0400	79.7	76.2	79.7	76.2	77.7	75.1	73.7	72.9	67.7	67.2	62.7	62.2
0500	79.5	76.1	79.5	76.1	77.5	75.0	73.5	72.9	67.5	67.0	62.5	62.0
0600	79.8	76.2	79.8	76.2	77.8	75.1	73.8	72.9	67.8	67.3	62.8	62.3
0700	80.6	76.4	80.6	76.4	78.6	75.3	74.6	73.2	68.6	68.1	63.6	63.1
0800	82.0	76.8	82.0	76.8	80.0	75.7	76.0	73.5	70.0	69.5	65.0	64.5
0900	84.0	77.3	84.0	77.3	82.0	76.2	78.0	74.1	72.0	70.9	67.0	66.5
1000	86.3	77.9	86.3	77.9	84.3	76.8	80.3	74.7	74.3	71.6	69.3	67.3
1100	89.0	78.5	89.0	78.5	87.0	77.5	83.0	75.4	77.0	72.3	72.0	68.2
1200	91.4	79.1	91.4	79.1	89.4	78.1	85.4	76.1	79.4	73.0	74.4	68.9
1300	93.3	79.6	93.3	79.6	91.3	78.6	87.3	76.6	81.3	73.5	76.3	69.5
1400	94.5	79.9	94.5	79.9	92.5	78.9	88.5	76.9	82.5	73.9	77.5	69.9
1500	95.0	80.0	95.0	80.0	93.0	79.0	89.0	77.0	83.0	74.0	78.0	70.0
1600	94.5	79.9	94.5	79.9	92.5	78.9	88.5	76.9	82.5	73.9	77.5	69.9
1700	93.5	79.6	93.5	79.6	91.5	78.6	87.5	76.6	81.5	73.6	76.5	69.6
1800	91.7	79.2	91.7	79.2	89.7	78.2	85.7	76.2	79.7	73.1	74.7	69.0
1900	89.7	78.7	89.7	78.7	87.7	77.7	83.7	75.6	77.7	72.5	72.7	68.4
2000	87.7	78.2	87.7	78.2	85.7	77.2	81.7	75.1	75.7	72.0	70.7	67.8
2100	86.0	77.8	86.0	77.8	84.0	76.7	80.0	74.6	74.0	71.5	69.0	67.3
2200	84.5	77.4	84.5	77.4	82.5	76.3	78.5	74.2	72.5	71.0	67.5	66.8
2300	83.2	77.1	83.2	77.1	81.2	76.0	77.2	73.9	71.2	70.7	66.2	65.7

Schedule Input Data

DRILL (Fractional)

Hourly Profiles:

1:Profile One

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Value	0	0	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0	0	0	0

2:Profile Two

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Assignments:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Design	1	1	1	1	1	1	1	1	1	1	1	1
Monday	2	2	2	2	2	2	2	2	2	2	2	2
Tuesday	2	2	2	2	2	2	2	2	2	2	2	2
Wednesday	2	2	2	2	2	2	2	2	2	2	2	2
Thursday	2	2	2	2	2	2	2	2	2	2	2	2
Friday	2	2	2	2	2	2	2	2	2	2	2	2
Saturday	1	1	1	1	1	1	1	1	1	1	1	1
Sunday	1	1	1	1	1	1	1	1	1	1	1	1
Holiday	2	2	2	2	2	2	2	2	2	2	2	2

Schedule Input Data

Sample Schedule (Fractional)

Hourly Profiles:

1:Profile One

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Value	0	0	0	0	0	1	51	100	100	100	100	100	100	100	100	100	100	100	50	26	0	0	0	0

2:Profile Two

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Assignments:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Design	1	1	1	1	1	1	1	1	1	1	1	1
Monday	1	1	1	1	1	1	1	1	1	1	1	1
Tuesday	1	1	1	1	1	1	1	1	1	1	1	1
Wednesday	1	1	1	1	1	1	1	1	1	1	1	1
Thursday	1	1	1	1	1	1	1	1	1	1	1	1
Friday	1	1	1	1	1	1	1	1	1	1	1	1
Saturday	2	2	2	2	2	2	2	2	2	2	2	2
Sunday	2	2	2	2	2	2	2	2	2	2	2	2
Holiday	2	2	2	2	2	2	2	2	2	2	2	2

thermostat (Fan / Thermostat)

Hourly Profiles:
1:Profile One

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Value	U	U	U	U	U	U	O	O	O	O	O	O	O	O	O	O	O	O	O	U	U	U	U	U

O = Occupied; U = Unoccupied

Assignments:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Design	1	1	1	1	1	1	1	1	1	1	1	1
Monday	1	1	1	1	1	1	1	1	1	1	1	1
Tuesday	1	1	1	1	1	1	1	1	1	1	1	1
Wednesday	1	1	1	1	1	1	1	1	1	1	1	1
Thursday	1	1	1	1	1	1	1	1	1	1	1	1
Friday	1	1	1	1	1	1	1	1	1	1	1	1
Saturday	1	1	1	1	1	1	1	1	1	1	1	1
Sunday	1	1	1	1	1	1	1	1	1	1	1	1
Holiday	1	1	1	1	1	1	1	1	1	1	1	1

Wall Constructions

Face Brick + R-7 Board

Wall Details

Outside Surface Color ..... Medium
Absorptivity 0.675
Overall U-Value ..... 0.125 BTU/(hr-ft²-°F)

Wall Layers Details (Inside to Outside)

Layers	Thickness in	Density lb/ft³	Specific Ht. BTU / (lb - °F)	R-Value (hr-ft²-°F)/BTU	Weight lb/ft²
Inside surface resistance	0.000	0.0	0.00	0.68500	0.0
1/2-in gypsum board	0.500	50.0	0.26	0.44803	2.1
R-7 board insulation	0.750	2.0	0.22	5.20833	0.1
Air space	0.000	0.0	0.00	0.91000	0.0
4-in face brick	4.000	125.0	0.22	0.43290	41.7
Outside surface resistance	0.000	0.0	0.00	0.33300	0.0
Totals	**5.250**	-		**8.01726**	**43.9**

Roof Constructions

Built-up Roof + R-14 Board + Steel Deck

Roof Details

Outside Surface Color ..... **Dark**
Absorptivity **0.900**
Overall U-Value ..... **0.066** BTU/(hr-ft²-°F)

Roof Layers Details (Inside to Outside)

Layers	Thickness in	Density lb/ft³	Specific Ht. BTU / (lb - °F)	R-Value (hr-ft²-°F)/BTU	Weight lb/ft²
Inside surface resistance	0.000	0.0	0.00	0.68500	0.0
22 gage steel deck	0.034	489.0	0.12	0.00011	1.4
R-14 board insulation	2.000	2.0	0.22	13.88889	0.3
Built-up roofing	0.375	70.0	0.35	0.33245	2.2
Outside surface resistance	0.000	0.0	0.00	0.33300	0.0
Totals	**2.409**	-		**15.23944**	**3.9**

Window Constructions

Sample Window Assembly

Window Details:

Detailed Input	No	
Height	1.00	ft
Width	1.00	ft
Overall U-Value	1.220	BTU/(hr-ft²-°F)
Overall Shade Coefficient	0.250	

Space Input Data

AHU 1-1

1. General Details:
Floor Area ..... 11255.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... RETAIL: Storage Rooms
OA Requirement 1 ..... 0.0 CFM/person
OA Requirement 2 ..... 0.15 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 0.80 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 2000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 10 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	2029.0	400	0	0
W	2238.0	0	0	0
S	1841.0	160	0	0

3.1. Construction Types for Exposure N
Wall Type ..... Face Brick + R-7 Board
1st Window Type ..... Sample Window Assembly

3.2. Construction Types for Exposure W
Wall Type ..... Face Brick + R-7 Board

3.3. Construction Types for Exposure S
Wall Type ..... Face Brick + R-7 Board
1st Window Type ..... Sample Window Assembly

4. Roofs, Skylights:
(No Roof or Skylight data).

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Slab Floor On Grade
Floor Area ..... 11255.0 ft²
Total Floor U-Value ..... 0.100 BTU/(hr-ft²-°F)
Exposed Perimeter ..... 0.0 ft
Edge Insulation R-Value ..... 0.00 (hr-ft²-°F)/BTU

7. Partitions:
(No partition data).

AHU 1-2

1. General Details:

Floor Area	5824.0	ft²
Avg. Ceiling Height	10.0	ft
Building Weight	70.0	lb/ft²

1.1. OA Ventilation Requirements:

Space Usage	EDUCATION: Classroom	
OA Requirement 1	15.0	CFM/person
OA Requirement 2	0.00	CFM/ft²

2. Internals:

2.1. Overhead Lighting:

Fixture Type	Recessed (Unvented)	
Wattage	1.40	W/ft²
Ballast Multiplier	1.08	
Schedule	Sample Schedule	

2.2. Task Lighting:

Wattage	0.00	W/ft²
Schedule	None	

2.3. Electrical Equipment:

Wattage	2000.0	Watts
Schedule	Sample Schedule	

2.4. People:

Occupancy	300	People
Activity Level	Office Work	
Sensible	245.0	BTU/hr/person
Latent	205.0	BTU/hr/person
Schedule	Sample Schedule	

2.5. Miscellaneous Loads:

Sensible	0	BTU/hr
Schedule	None	
Latent	0	BTU/hr
Schedule	None	

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	2423.0	480	0	0
E	939.0	320	0	0

3.1. Construction Types for Exposure N

Wall Type	Face Brick + R-7 Board
1st Window Type	Sample Window Assembly

3.2. Construction Types for Exposure E

Wall Type	Face Brick + R-7 Board
1st Window Type	Sample Window Assembly

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	0.00	CFM
Design Heating	0.00	CFM
Energy Analysis	0.00	CFM

Infiltration occurs only when the fan is off.

6. Floors:

Type	Slab Floor On Grade	
Floor Area	5824.0	ft²
Total Floor U-Value	0.100	BTU/(hr-ft²-°F)
Exposed Perimeter	0.0	ft
Edge Insulation R-Value	0.00	(hr-ft²-°F)/BTU

7. Partitions:

(No partition data).

AHU 1-3

1. General Details:
Floor Area ..... 7851.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... OFFICE: Office Space
OA Requirement 1 ..... 20.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.10 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 5000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 85 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	1100.0	0	0	0
S	1650.0	320	0	0

3.1. Construction Types for Exposure E
Wall Type ..... Face Brick + R-7 Board

3.2. Construction Types for Exposure S
Wall Type ..... Face Brick + R-7 Board
1st Window Type ..... Sample Window Assembly

4. Roofs, Skylights:
(No Roof or Skylight data).

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Slab Floor On Grade
Floor Area ..... 7851.0 ft²
Total Floor U-Value ..... 0.100 BTU/(hr-ft²-°F)
Exposed Perimeter ..... 0.0 ft
Edge Insulation R-Value ..... 0.00 (hr-ft²-°F)/BTU

7. Partitions:
(No partition data).

AHU 1-4

1. General Details:

Floor Area	1733.0	ft²
Avg. Ceiling Height	10.0	ft
Building Weight	70.0	lb/ft²

1.1. OA Ventilation Requirements:

Space Usage	OFFICE: Reception Areas	
OA Requirement 1	15.0	CFM/person
OA Requirement 2	0.00	CFM/ft²

2. Internals:

2.1. Overhead Lighting:

Fixture Type	Recessed (Unvented)	
Wattage	1.30	W/ft²
Ballast Multiplier	1.08	
Schedule	Sample Schedule	

2.2. Task Lighting:

Wattage	0.00	W/ft²
Schedule	None	

2.3. Electrical Equipment:

Wattage	2000.0	Watts
Schedule	Sample Schedule	

2.4. People:

Occupancy	10	People
Activity Level	Office Work	
Sensible	245.0	BTU/hr/person
Latent	205.0	BTU/hr/person
Schedule	Sample Schedule	

2.5. Miscellaneous Loads:

Sensible	0	BTU/hr
Schedule	None	
Latent	0	BTU/hr
Schedule	None	

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	793.0	80	0	0

3.1. Construction Types for Exposure N

Wall Type	Face Brick + R-7 Board
1st Window Type	Sample Window Assembly

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	0.00	CFM
Design Heating	0.00	CFM
Energy Analysis	0.00	CFM

Infiltration occurs only when the fan is off.

6. Floors:

Type	Slab Floor On Grade	
Floor Area	1733.0	ft²
Total Floor U-Value	0.100	BTU/(hr-ft²-°F)
Exposed Perimeter	0.0	ft
Edge Insulation R-Value	0.00	(hr-ft²-°F)/BTU

7. Partitions:

(No partition data).

AHU 1-5

1. General Details:
Floor Area ..... 7514.0 ft²
Avg. Ceiling Height ..... 20.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... OFFICE: Reception Areas
OA Requirement 1 ..... 15.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.40 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 2000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 600 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... DRILL

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	2608.0	0	0	0
W	1914.0	100	0	0
E	1914.0	100	0	0

3.1. Construction Types for Exposure S
Wall Type ..... Face Brick + R-7 Board

3.2. Construction Types for Exposure W
Wall Type ..... Face Brick + R-7 Board
1st Window Type ..... Sample Window Assembly

3.3. Construction Types for Exposure E
Wall Type ..... Face Brick + R-7 Board
1st Window Type ..... Sample Window Assembly

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	7514.0	0	0

4.1. Construction Types for Exposure H
Roof Type ..... Built-up Roof + R-14 Board + Steel Deck

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Slab Floor On Grade
Floor Area ..... 7514.0 ft²
Total Floor U-Value ..... 0.100 BTU/(hr-ft²-°F)
Exposed Perimeter ..... 0.0 ft
Edge Insulation R-Value ..... 0.00 (hr-ft²-°F)/BTU

7. Partitions:
(No partition data).

AHU 2-1

1. General Details:

Floor Area	1200.0	ft²
Avg. Ceiling Height	10.0	ft
Building Weight	70.0	lb/ft²

1.1. OA Ventilation Requirements:

Space Usage	WORKROOMS: Bank Vaults	
OA Requirement 1	15.0	CFM/person
OA Requirement 2	0.00	CFM/ft²

2. Internals:

2.1. Overhead Lighting:

Fixture Type	Recessed (Unvented)	
Wattage	1.40	W/ft²
Ballast Multiplier	1.08	
Schedule	Sample Schedule	

2.2. Task Lighting:

Wattage	0.00	W/ft²
Schedule	None	

2.3. Electrical Equipment:

Wattage	0.0	Watts
Schedule	Sample Schedule	

2.4. People:

Occupancy	4	People
Activity Level	Office Work	
Sensible	245.0	BTU/hr/person
Latent	205.0	BTU/hr/person
Schedule	Sample Schedule	

2.5. Miscellaneous Loads:

Sensible	0	BTU/hr
Schedule	None	
Latent	0	BTU/hr
Schedule	None	

3. Walls, Windows, Doors:
(No Wall, Window, Door data).

4. Roofs, Skylights:
(No Roof or Skylight data).

5. Infiltration:

Design Cooling	0.00	CFM
Design Heating	0.00	CFM
Energy Analysis	0.00	CFM

Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 2-2

1. General Details:
Floor Area ..... 6228.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage . PUBLIC: Locker and Dressing Rooms
OA Requirement 1 ..... 0.0 CFM/person
OA Requirement 2 ..... 0.50 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 0.90 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 1000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 192 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... DRILL

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	1494.0	307	0	0
W	816.0	0	0	0

3.1. Construction Types for Exposure S
Wall Type ..... Face Brick + R-7 Board
1st Window Type ..... Sample Window Assembly

3.2. Construction Types for Exposure W
Wall Type ..... Face Brick + R-7 Board

4. Roofs, Skylights:
(No Roof or Skylight data).

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

Space Input Data

AHU 2-3

1. General Details:
Floor Area ..... 6000.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... EDUCATION: Classroom
OA Requirement 1 ..... 15.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.40 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 15000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 44 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	1996.0	360	0	0
E	776.0	0	0	0

3.1. Construction Types for Exposure N
Wall Type ..... Face Brick + R-7 Board
1st Window Type ..... Sample Window Assembly

3.2. Construction Types for Exposure E
Wall Type ..... Face Brick + R-7 Board

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	700.0	0	0

4.1. Construction Types for Exposure H
Roof Type ..... Built-up Roof + R-14 Board + Steel Deck

6. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 2-4

1. General Details:
Floor Area ..... 7984.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... EDUCATION: Locker Rooms
OA Requirement 1 ..... 0.0 CFM/person
OA Requirement 2 ..... 0.50 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 0.90 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 0.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 360 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	2000.0	360	0	0
W	776.0	0	0	0

3.1. Construction Types for Exposure N
Wall Type ..... Face Brick + R-7 Board
1st Window Type ..... Sample Window Assembly

3.2. Construction Types for Exposure W
Wall Type ..... Face Brick + R-7 Board

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	700.0	0	0

4.1. Construction Types for Exposure H
Roof Type ..... Built-up Roof + R-14 Board + Steel Deck

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 3-1

1. General Details:
Floor Area ..... 4534.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... OFFICE: Office Space
OA Requirement 1 ..... 20.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.10 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 8000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 42 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	622.0	0	0	0
S	1635.0	180	0	0

3.1. Construction Types for Exposure E
Wall Type ..... Face Brick + R-7 Board

3.2. Construction Types for Exposure S
Wall Type ..... Face Brick + R-7 Board
1st Window Type ..... Sample Window Assembly

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	3600.0	0	0

4.1. Construction Types for Exposure H
Roof Type ..... Built-up Roof + R-14 Board + Steel Deck

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 3-2

1. General Details:
Floor Area ..... 6529.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... OFFICE: Office Space
OA Requirement 1 ..... 20.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.10 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 8000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 50 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	622.0	0	0	0
S	1896.0	180	0	0

3.1. Construction Types for Exposure E
Wall Type ..... Face Brick + R-7 Board

3.2. Construction Types for Exposure S
Wall Type ..... Face Brick + R-7 Board
1st Window Type ..... Sample Window Assembly

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	3600.0	0	0

4.1. Construction Types for Exposure H
Roof Type ..... Built-up Roof + R-14 Board + Steel Deck

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 3-3

1. General Details:

Floor Area	8100.0	ft²
Avg. Ceiling Height	10.0	ft
Building Weight	70.0	lb/ft²

1.1. OA Ventilation Requirements:

Space Usage	OFFICE: Office Space	
OA Requirement 1	20.0	CFM/person
OA Requirement 2	0.00	CFM/ft²

2. Internals:

2.1. Overhead Lighting:

Fixture Type	Recessed (Unvented)	
Wattage	1.10	W/ft²
Ballast Multiplier	1.08	
Schedule	Sample Schedule	

2.2. Task Lighting:

Wattage	0.00	W/ft²
Schedule	None	

2.3. Electrical Equipment:

Wattage	8000.0	Watts
Schedule	Sample Schedule	

2.4. People:

Occupancy	50	People
Activity Level	Office Work	
Sensible	245.0	BTU/hr/person
Latent	205.0	BTU/hr/person
Schedule	Sample Schedule	

2.5. Miscellaneous Loads:

Sensible	0	BTU/hr
Schedule	None	
Latent	0	BTU/hr
Schedule	None	

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	622.0	0	0	0
N	1896.0	180	0	0

3.1. Construction Types for Exposure W

Wall Type ..... Face Brick + R-7 Board

3.2. Construction Types for Exposure N

Wall Type ..... Face Brick + R-7 Board
1st Window Type ..... Sample Window Assembly

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	3600.0	0	0

4.1. Construction Types for Exposure H

Roof Type ..... Built-up Roof + R-14 Board + Steel Deck

5. Infiltration:

Design Cooling	0.00	CFM
Design Heating	0.00	CFM
Energy Analysis	0.00	CFM

Infiltration occurs only when the fan is off.

6. Floors:

Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:

(No partition data).

Space Input Data

AHU 3-4

1. General Details:
Floor Area ..... 4534.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... OFFICE: Office Space
OA Requirement 1 ..... 20.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.10 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 8000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 42 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	622.0	0	0	0
S	1635.0	180	0	0

3.1. Construction Types for Exposure W
Wall Type ..... Face Brick + R-7 Board

3.2. Construction Types for Exposure S
Wall Type ..... Face Brick + R-7 Board
1st Window Type ..... Sample Window Assembly

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	3600.0	0	0

4.1. Construction Types for Exposure H
Roof Type ..... Built-up Roof + R-14 Board + Steel Deck

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 4-1

1. General Details:
Floor Area ..... 5600.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... OFFICE: Office Space
OA Requirement 1 ..... 20.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.10 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 4000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 26 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	834.0	0	0	0
S	1806.0	130	0	0
E	834.0	0	0	0

3.1. Construction Types for Exposure W
Wall Type ..... Face Brick + R-7 Board

3.2. Construction Types for Exposure S
Wall Type ..... Face Brick + R-7 Board
1st Window Type ..... Sample Window Assembly

3.3. Construction Types for Exposure E
Wall Type ..... Face Brick + R-7 Board

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	5600.0	0	0

4.1. Construction Types for Exposure H
Roof Type ..... Built-up Roof + R-14 Board + Steel Deck

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 4-2

1. General Details:

Floor Area	5600.0	ft²
Avg. Ceiling Height	10.0	ft
Building Weight	70.0	lb/ft²

1.1. OA Ventilation Requirements:

Space Usage	OFFICE: Office Space	
OA Requirement 1	20.0	CFM/person
OA Requirement 2	0.00	CFM/ft²

2. Internals:

2.1. Overhead Lighting:

Fixture Type	Recessed (Unvented)	
Wattage	1.10	W/ft²
Ballast Multiplier	1.08	
Schedule	Sample Schedule	

2.2. Task Lighting:

Wattage	0.00	W/ft²
Schedule	None	

2.3. Electrical Equipment:

Wattage	4000.0	Watts
Schedule	Sample Schedule	

2.4. People:

Occupancy	50	People
Activity Level	Office Work	
Sensible	245.0	BTU/hr/person
Latent	205.0	BTU/hr/person
Schedule	Sample Schedule	

2.5. Miscellaneous Loads:

Sensible	0	BTU/hr
Schedule	None	
Latent	0	BTU/hr
Schedule	None	

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	834.0	0	0	0
N	1806.0	130	0	0
E	834.0	0	0	0

3.1. Construction Types for Exposure W
Wall Type ..... Face Brick + R-7 Board

3.2. Construction Types for Exposure N
Wall Type ..... Face Brick + R-7 Board
1st Window Type ..... Sample Window Assembly

3.3. Construction Types for Exposure E
Wall Type ..... Face Brick + R-7 Board

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	5600.0	0	0

4.1. Construction Types for Exposure H
Roof Type ..... Built-up Roof + R-14 Board + Steel Deck

5. Infiltration:

Design Cooling	0.00	CFM
Design Heating	0.00	CFM
Energy Analysis	0.00	CFM

Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 1-1 Input Data

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:33PM

1. General Details:

Air System Name	AHU 1-1
Equipment Class	Chilled Water AHU
Air System Type	Single Zone CAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Scheduled control	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Schedule	Sample Schedule	
Damper Leak Rate	0	%
Outdoor Air CO2 Level	400	ppm

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Central Heating Data:

Supply Temperature	95.0	°F
Heating Source	Electric Resistance	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	2.50	in wg
Overall Efficiency	54	%

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
AHU 1-1	x1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	76.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW
Thermostat Schedule	thermostat	
Unoccupied Cooling is	Available	

Supply Terminals Data:

Zone	All	
Terminal Type	Diffuser	
Minimum Airflow	0.0	CFM

Zone Heating Units:

Zone	All

Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 3048.3 CFM
Ventilation Fan Airflow ..... 1688.3 CFM
Heating Supply Temperature ..... 95.0 °F

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 5 %
Cooling Latent ..... 5 %
Heating ..... 5 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Sum of space airflow rates
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	3048.3	-	-	

5. Equipment Data
No Equipment Data required for this system.

AHU 1-2 Input Data

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:33PM

1. General Details:

Air System Name	AHU 1-2
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Proportional	
Ventilation Sizing Method	Sum of Space OA Airflows	
Minimum Airflow	0	%
Unocc. Damper Position	Closed	
Damper Leak Rate	0	%
Outdoor Air CO2 Level	400	ppm

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Constant Temperature - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	54	%

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule	thermostat
Unoccupied Cooling Is	Available

Supply Terminals Data:

Zone	All	
Terminal Type	VAV box with RH	
Minimum Airflow	30	% of supply air

Reheat Coil Source	Electric Resistance
Reheat Coil Schedule	JFMAMJJASOND

Zone Heating Units:
- Zone ..... All
- Zone Heating Unit Type ..... None

- Zone Unit Heat Source ..... Hot Water
- Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:
- Cooling Supply Temperature ..... 55.0 °F
- Supply Fan Airflow ..... 5556.3 CFM
- Ventilation Fan Airflow ..... 4500.0 CFM

Hydronic Sizing Specifications:
- Chilled Water Delta-T ..... 10.0 °F
- Hot Water Delta-T ..... 20.0 °F

Safety Factors:
- Cooling Sensible ..... 5 %
- Cooling Latent ..... 5 %
- Heating ..... 5 %

Zone Sizing Data:
- Zone Airflow Sizing Method ..... Peak zone sensible load
- Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	5556.3	-	81.4	

5. Equipment Data

No Equipment Data required for this system.

AHU 1-3 Input Data

1. General Details:

Air System Name	AHU 1-3	
Equipment Class	Chilled Water AHU	
Air System Type	VAV	
Number of zones	1	

2. System Components:

Ventilation Air Data:

Airflow Control	Proportional	
Ventilation Sizing Method	Sum of Space OA Airflows	
Minimum Airflow	0	%
Unocc. Damper Position	Closed	
Damper Leak Rate	0	%
Outdoor Air CO2 Level	400	ppm

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Constant Temperature - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	54	%

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW
Thermostat Schedule	thermostat	
Unoccupied Cooling is	Available	

Supply Terminals Data:

Zone	All	
Terminal Type	VAV box with RH	
Minimum Airflow	30	% of supply air
Reheat Coil Source	Electric Resistance	
Reheat Coil Schedule	JFMAMJJASOND	

Zone Heating Units:

Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature	55.0	°F
Supply Fan Airflow	3438.4	CFM
Ventilation Fan Airflow	1700.0	CFM

Hydronic Sizing Specifications:

Chilled Water Delta-T	10.0	°F
Hot Water Delta-T	20.0	°F

Safety Factors:

Cooling Sensible	5	%
Cooling Latent	5	%
Heating	5	%

Zone Sizing Data:

Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	3438.4	-	45.8	

5. Equipment Data

No Equipment Data required for this system.

AHU 1-4 Input Data

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:33PM

1. General Details:

Air System Name	AHU 1-4	
Equipment Class	Chilled Water AHU	
Air System Type	Single Zone CAV	
Number of zones	1	

2. System Components:

Ventilation Air Data:

Airflow Control	Scheduled control	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Schedule	Sample Schedule	
Damper Leak Rate	0	%
Outdoor Air CO2 Level	400	ppm

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Central Heating Data:

Supply Temperature	95.0	°F
Heating Source	Electric Resistance	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	2.50	in wg
Overall Efficiency	54	%

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
AHU 1-4	x1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW
Thermostat Schedule	thermostat	
Unoccupied Cooling is	Available	

Supply Terminals Data:

Zone	All	
Terminal Type	Diffuser	
Minimum Airflow	0.0	CFM

Zone Heating Units:

Zone	All

Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature	55.0	°F
Supply Fan Airflow	845.8	CFM
Ventilation Fan Airflow	150.0	CFM
Heating Supply Temperature	95.0	°F

Hydronic Sizing Specifications:

Chilled Water Delta-T	10.0	°F
Hot Water Delta-T	20.0	°F

Safety Factors:

Cooling Sensible	5	%
Cooling Latent	5	%
Heating	5	%

Zone Sizing Data:

Zone Airflow Sizing Method ..... Sum of space airflow rates
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	845.8	-	-	

5. Equipment Data

No Equipment Data required for this system.

AHU 1-5 Input Data

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:33PM

1. General Details:

Air System Name	AHU 1-5
Equipment Class	Chilled Water AHU
Air System Type	Single Zone CAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Scheduled control	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Schedule	Sample Schedule	
Damper Leak Rate	0	%
Outdoor Air CO2 Level	400	ppm

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Central Heating Data:

Supply Temperature	95.0	°F
Heating Source	Electric Resistance	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	2.50	in wg
Overall Efficiency	54	%

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
AHU 1-5	x1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW
Thermostat Schedule	thermostat	
Unoccupied Cooling is	Available	

Supply Terminals Data:

Zone	All	
Terminal Type	Diffuser	
Minimum Airflow	0.0	CFM

Zone Heating Units:

Zone	All

Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 9218.7 CFM
Ventilation Fan Airflow ..... 9000.0 CFM
Heating Supply Temperature ..... 95.0 °F

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 5 %
Cooling Latent ..... 5 %
Heating ..... 5 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Sum of space airflow rates
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	9218.7	-	-	

5. Equipment Data
No Equipment Data required for this system.

AHU 2-1 Input Data

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:33PM

1. General Details:

Air System Name	AHU 2-1	
Equipment Class	Chilled Water AHU	
Air System Type	Single Zone CAV	
Number of zones	1	

2. System Components:

Ventilation Air Data:

Airflow Control	Scheduled control	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Schedule	Sample Schedule	
Damper Leak Rate	0	%
Outdoor Air CO2 Level	400	ppm

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.100	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Central Heating Data:

Supply Temperature	95.0	°F
Heating Source	Electric Resistance	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	2.50	in wg
Overall Efficiency	54	%

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
AHU 2-1	x1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule	thermostat
Unoccupied Cooling is	Available

Supply Terminals Data:

Zone	All	
Terminal Type	Diffuser	
Minimum Airflow	0.0	CFM

Zone Heating Units:

Zone	All

Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:

Cooling Supply Temperature	55.0	°F
Supply Fan Airflow	217.9	CFM
Ventilation Fan Airflow	60.0	CFM
Heating Supply Temperature	95.0	°F

Hydronic Sizing Specifications:

Chilled Water Delta-T	10.0	°F
Hot Water Delta-T	20.0	°F

Safety Factors:

Cooling Sensible	5	%
Cooling Latent	5	%
Heating	5	%

Zone Sizing Data:
Zone Airflow Sizing Method ..... Sum of space airflow rates
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	217.9	-	-	

5. Equipment Data
No Equipment Data required for this system.

AHU 2-2 Input Data

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:33PM

1. General Details:

Air System Name	AHU 2-2	
Equipment Class	Chilled Water AHU	
Air System Type	VAV	
Number of zones	1	

2. System Components:

Ventilation Air Data:

Airflow Control	Proportional	
Ventilation Sizing Method	Sum of Space OA Airflows	
Minimum Airflow	0	%
Unocc. Damper Position	Closed	
Damper Leak Rate	0	%
Outdoor Air CO2 Level	400	ppm

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Constant Temperature - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	54	%

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW
Thermostat Schedule	thermostat	
Unoccupied Cooling is	Available	

Supply Terminals Data:

Zone	All	
Terminal Type	VAV box with RH	
Minimum Airflow	30	% of supply air
Reheat Coil Source	Electric Resistance	
Reheat Coil Schedule	JFMAMJJASOND	

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 3357.4 CFM
Ventilation Fan Airflow ..... 3114.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	3357.4	-	41.3	

5. Equipment Data
No Equipment Data required for this system.

AHU 2-3 Input Data

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:33PM

1. General Details:

Air System Name	AHU 2-3
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Proportional	
Ventilation Sizing Method	Sum of Space OA Airflows	
Minimum Airflow	0	%
Unocc. Damper Position	Closed	
Damper Leak Rate	0	%
Outdoor Air CO2 Level	400	ppm

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Constant Temperature - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	64	%

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW
Thermostat Schedule	thermostat	
Unoccupied Cooling is	Available	

Supply Terminals Data:

Zone	All	
Terminal Type	VAV box with RH	
Minimum Airflow	30	% of supply air
Reheat Coil Source	Electric Resistance	
Reheat Coil Schedule	JFMAMJJASOND	

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 2510.9 CFM
Ventilation Fan Airflow ..... 660.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	2510.9	-	43.6	

5. Equipment Data
No Equipment Data required for this system.

AHU 2-4 Input Data

1. General Details:

Air System Name	AHU 2-4
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Proportional	
Ventilation Sizing Method	Sum of Space OA Airflows	
Minimum Airflow	0	%
Unocc. Damper Position	Closed	
Damper Leak Rate	0	%
Outdoor Air CO2 Level	400	ppm

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Constant Temperature - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	54	%

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule	thermostat
Unoccupied Cooling is	Available

Supply Terminals Data:

Zone	All	
Terminal Type	VAV box with RH	
Minimum Airflow	30	% of supply air

Reheat Coil Source	Electric Resistance
Reheat Coil Schedule	JFMAMJJASOND

AHU 2-4 Input Data

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 4894.7 CFM
Ventilation Fan Airflow ..... 3992.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	4894.7	-	55.2	

5. Equipment Data
No Equipment Data required for this system.

AHU 3-1 Input Data

1. General Details:

Air System Name	AHU 3-1	
Equipment Class	Chilled Water AHU	
Air System Type	VAV	
Number of zones	1	

2. System Components:

Ventilation Air Data:

Airflow Control	Proportional	
Ventilation Sizing Method	Sum of Space OA Airflows	
Minimum Airflow	0	%
Unocc. Damper Position	Closed	
Damper Leak Rate	0	%
Outdoor Air CO2 Level	400	ppm

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Constant Temperature - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	54	%

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule	thermostat
Unoccupied Cooling is	Available

Supply Terminals Data:

Zone	All	
Terminal Type	VAV box with RH	
Minimum Airflow	30	% of supply air

Reheat Coil Source	Electric Resistance
Reheat Coil Schedule	JFMAMJJASOND

AHU 3-1 Input Data

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 2874.5 CFM
Ventilation Fan Airflow ..... 840.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	2874.5	-	42.6	

5. Equipment Data
No Equipment Data required for this system.

AHU 3-2 Input Data

1. General Details:

Air System Name	AHU 3-2
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Proportional	
Ventilation Sizing Method	Sum of Space OA Airflows	
Minimum Airflow	0	%
Unocc. Damper Position	Closed	
Damper Leak Rate	0	%
Outdoor Air CO2 Level	400	ppm

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Constant Temperature - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	4.00	In wg
Overall Efficiency	54	%

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule	thermostat
Unoccupied Cooling is	Available

Supply Terminals Data:

Zone	All	
Terminal Type	VAV box with RH	
Minimum Airflow	30	% of supply air

Reheat Coil Source	Electric Resistance
Reheat Coil Schedule	JFMAMJJASOND

AHU 3-2 Input Data

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 3104.9 CFM
Ventilation Fan Airflow ..... 1000.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	3104.9	-	45.0	

5. Equipment Data
No Equipment Data required for this system.

AHU 3-3 Input Data

1. General Details:

Air System Name	AHU 3-3
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Proportional	
Ventilation Sizing Method	Sum of Space OA Airflows	
Minimum Airflow	0	%
Unocc. Damper Position	Closed	
Damper Leak Rate	0	%
Outdoor Air CO2 Level	400	ppm

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Constant Temperature - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	54	%

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule	thermostat
Unoccupied Cooling is	Available

Supply Terminals Data:

Zone	All	
Terminal Type	VAV box with RH	
Minimum Airflow	30	% of supply air

Reheat Coil Source	Electric Resistance
Reheat Coil Schedule	JFMAMJJASOND

AHU 3-3 Input Data

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 3268.9 CFM
Ventilation Fan Airflow ..... 1000.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	3268.9	-	45.8	

5. Equipment Data
No Equipment Data required for this system.

AHU 3-4 Input Data

1. General Details:

Air System Name	AHU 3-4
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Proportional	
Ventilation Sizing Method	Sum of Space OA Airflows	
Minimum Airflow	0	%
Unocc. Damper Position	Closed	
Damper Leak Rate	0	%
Outdoor Air CO2 Level	400	ppm

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Constant Temperature - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	54	%

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW
Thermostat Schedule	thermostat	
Unoccupied Cooling is	Available	

Supply Terminals Data:

Zone	All	
Terminal Type	VAV box with RH	
Minimum Airflow	30	% of supply air
Reheat Coil Source	Electric Resistance	
Reheat Coil Schedule	JFMAMJJASOND	

AHU 3-4 Input Data

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 2868.6 CFM
Ventilation Fan Airflow ..... 840.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	2868.6	-	42.5	

5. Equipment Data
No Equipment Data required for this system.

AHU 4-1 Input Data

1. General Details:

Air System Name ..... AHU 4-1
Equipment Class ..... Chilled Water AHU
Air System Type ..... VAV
Number of zones 1

2. System Components:

Ventilation Air Data:

Airflow Control ..... Proportional
Ventilation Sizing Method ..... Sum of Space OA Airflows
Minimum Airflow ..... 0 %
Unocc. Damper Position ..... Closed
Damper Leak Rate ..... 0 %
Outdoor Air CO2 Level ..... 400 ppm

Central Cooling Data:

Supply Air Temperature ..... 55.0 °F
Coil Bypass Factor 0.050
Cooling Source ..... Chilled Water
Schedule ..... JFMAMJJASOND
Capacity Control ..... Constant Temperature - Fan On

Supply Fan Data:

Fan Type ..... Forward Curved
Configuration ..... Draw-thru
Fan Performance ..... 4.00 in wg
Overall Efficiency ..... 54 %

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain ..... 0 %
Duct Leakage ..... 0 %

Return Duct or Plenum Data:

Return Air Via ..... Return Air Plenum
Wall Heat Gain to Plenum ..... 0 %
Roof Heat Gain to Plenum ..... 70 %
Lighting Heat Gain to Plenum ..... 30 %

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone ..... All
Cooling T-stat: Occ. ..... 75.0 °F
Cooling T-stat: Unocc. ..... 85.0 °F
Heating T-stat: Occ. ..... 70.0 °F
Heating T-stat: Unocc. ..... 60.0 °F
T-stat Throttling Range ..... 3.00 °F
Diversity Factor ..... 100 %
Direct Exhaust Airflow ..... 0.0 CFM
Direct Exhaust Fan kW ..... 0.0 kW

Thermostat Schedule ..... thermostat
Unoccupied Cooling is ..... Available

Supply Terminals Data:

Zone ..... All
Terminal Type ..... VAV box with RH
Minimum Airflow ..... 30 % of supply air

Reheat Coil Source ..... Electric Resistance
Reheat Coil Schedule ..... JFMAMJJASOND

AHU 4-1 Input Data

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 2474.8 CFM
Ventilation Fan Airflow ..... 520.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	2474.8	-	49.7	

5. Equipment Data
No Equipment Data required for this system.

AHU 4-2 Input Data

1. General Details:

Air System Name	AHU 4-2
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Proportional	
Ventilation Sizing Method	Sum of Space OA Airflows	
Minimum Airflow	0	%
Unocc. Damper Position	Closed	
Damper Leak Rate	0	%
Outdoor Air CO2 Level	400	ppm

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.060	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Constant Temperature - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	54	%

% Airflow	100	90	80	70	60	50
% kW	100	91	81	72	61	54

% Airflow	40	30	20	10	0
% kW	46	40	33	27	21

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule	thermostat
Unoccupied Cooling is	Available

Supply Terminals Data:

Zone	All	
Terminal Type	VAV box with RH	
Minimum Airflow	30	% of supply air

Reheat Coil Source	Electric Resistance
Reheat Coil Schedule	JFMAMJJASOND

AHU 4-2 Input Data

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 2611.6 CFM
Ventilation Fan Airflow ..... 1000.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	2611.6	-	50.4	

5. Equipment Data
No Equipment Data required for this system.

Air System Sizing Summary for AHU 1-1

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 1-1	Number of zones	1	
Equipment Class	CW AHU	Floor Area	11255.0	ft²
Air System Type	SZCAV	Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Sum of space airflow rates	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	15.8	Tons	Load occurs at	Aug 1600	
Total coil load	189.4	MBH	OA DB / WB	94.5 / 79.9	°F
Sensible coil load	109.9	MBH	Entering DB / WB	88.4 / 73.6	°F
Coil CFM at Aug 1600	3048	CFM	Leaving DB / WB	55.0 / 54.5	°F
Max block CFM	3048	CFM	Coil ADP	53.2	°F
Sum of peak zone CFM	3048	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.580		Resulting RH	45	%
ft²/Ton	713.1		Design supply temp.	55.0	°F
BTU/(hr-ft²)	16.8		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	37.90	gpm	Max zone temperature deviation	0.0	°F

Central Heating Coil Sizing Data

Max coil load	119.6	MBH	Load occurs at	Des Htg	
Coil CFM at Des Htg	3048	CFM	BTU/(hr-ft²)	10.6	
Max coil CFM	3048	CFM	Ent. DB / Lvg DB	47.1 / 83.4	°F
Water flow @ 20.0 °F drop	N/A				

Supply Fan Sizing Data

Actual max CFM	3048	CFM	Fan motor BHP	2.22	BHP
Standard CFM	3045	CFM	Fan motor kW	1.66	kW
Actual max CFM/ft²	0.27	CFM/ft²	Fan static	2.50	in wg

Outdoor Ventilation Air Data

Design airflow CFM	1688	CFM	CFM/person	168.83	CFM/person
CFM/ft²	0.15	CFM/ft²			

Air System Design Load Summary for AHU 1-1

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1600 COOLING OA DB / WB 94.5 °F / 79.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	560 ft²	3132	-	560 ft²	-	-
Wall Transmission	5548 ft²	18832	-	5548 ft²	27680	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	560 ft²	11675	-	560 ft²	27328	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	11256 ft²	0	-	11256 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	9724 W	19490	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	2000 W	6334	-	0	0	-
People	10	1958	2050	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	3071	103	5%	2750	0
>> Total Zone Loads	-	64493	2153	-	57759	0
Zone Conditioning	-	69283	2153	-	55612	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	0	-	0	0	-
Plenum Lighting Load	30%	9954	-	0	0	-
Return Fan Load	3048 CFM	0	-	3048 CFM	0	-
Ventilation Load	1688 CFM	25050	77297	1688 CFM	69604	0
Supply Fan Load	3048 CFM	5649	-	3048 CFM	-5649	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	109936	79449	-	119567	0
Central Cooling Coil	-	109936	79450	-	0	0
Central Heating Coil	-	0	-	-	119567	-
>> Total Conditioning	-	109936	79450	-	119567	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Air System Sizing Summary for AHU 1-2

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 1-2	Number of zones	1	
Equipment Class	CW AHU	Floor Area	5824.0	ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	38.0	Tons	Load occurs at	Jul 1500	
Total coil load	455.6	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	228.0	MBH	Entering DB / WB	92.0 / 77.7	°F
Coil CFM at Jul 1500	6312	CFM	Leaving DB / WB	52.2 / 52.0	°F
Max block CFM at Jul 1700	5556	CFM	Coil ADP	50.1	°F
Sum of peak zone CFM	5556	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.501		Resulting RH	53	%
ft²/Ton	153.4		Design supply temp.	55.0	°F
BTU/(hr-ft²)	78.2		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	91.16	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Jul 1700	5556	CFM	Fan motor BHP	6.48	BHP
Standard CFM	5550	CFM	Fan motor kW	4.83	kW
Actual max CFM/ft²	0.95	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	4500	CFM	CFM/person	15.00	CFM/person
CFM/ft²	0.77	CFM/ft²			

Air System Design Load Summary for AHU 1-2

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500 COOLING OA DB / WB 95.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 26.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	800 ft²	6743	-	800 ft²	-	-
Wall Transmission	2562 ft²	7079	-	2562 ft²	12782	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	800 ft²	16810	-	800 ft²	39040	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	5824 ft²	0	-	5824 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	8806 W	17412	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	2000 W	6300	-	0	0	-
People	300	57696	61500	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	5602	3075	5%	2591	0
>> Total Zone Loads	-	**117641**	**64575**	-	**54414**	**0**
Zone Conditioning	-	130584	64575	-	41466	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	0	-	0	0	-
Plenum Lighting Load	30%	9014	-	0	0	-
Return Fan Load	5312 CFM	0	-	1667 CFM	0	-
Ventilation Load	4302 CFM	72600	162978	1350 CFM	46529	0
Supply Fan Load	5312 CFM	15825	-	1667 CFM	-6590	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**228023**	**227553**	-	**81405**	**0**
Central Cooling Coil	-	228023	227553	-	0	0
Terminal Reheat Coils	-	0	-	-	81388	-
>> Total Conditioning	-	**228023**	**227553**	-	**81388**	**0**
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Air System Sizing Summary for AHU 1-3

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 1-3	Number of zones	1
Equipment Class	CW AHU	Floor Area	7851.0 ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	18.0	Tons	Load occurs at	Aug 1500	
Total coil load	215.6	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	124.8	MBH	Entering DB / WB	87.7 / 72.8	°F
Coil CFM at Aug 1500	3266	CFM	Leaving DB / WB	52.2 / 51.8	°F
Max block CFM at Sep 1600	3438	CFM	Coil ADP	50.4	°F
Sum of peak zone CFM	3438	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.579		Resulting RH	46	%
ft²/Ton	437.0		Design supply temp.	55.0	°F
BTU/(hr-ft²)	27.5		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	43.14	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Sep 1600	3438	CFM	Fan motor BHP	4.01	BHP
Standard CFM	3435	CFM	Fan motor kW	2.99	kW
Actual max CFM/ft²	0.44	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	1700	CFM	CFM/person	20.00	CFM/person
CFM/ft²	0.22	CFM/ft²			

Air System Design Load Summary for AHU 1-3

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1500 COOLING OA DB / WB 95.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	**Details**	**Sensible (BTU/hr)**	**Latent (BTU/hr)**	**Details**	**Sensible (BTU/hr)**	**Latent (BTU/hr)**
Window & Skylight Solar Loads	320 ft²	2877	-	320 ft²	-	-
Wall Transmission	2430 ft²	8661	-	2430 ft²	12124	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	320 ft²	6724	-	320 ft²	15616	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	7851 ft²	0	-	7851 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	9327 W	18442	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	5000 W	15750	-	0	0	-
People	85	16347	17425	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	3440	871	5%	1387	0
>> Total Zone Loads	-	**72240**	**18296**	-	**29127**	**0**
Zone Conditioning	-	80167	18296	-	27048	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	0	-	0	0	-
Plenum Lighting Load	30%	9547	-	0	0	-
Return Fan Load	3266 CFM	0	-	1032 CFM	0	-
Ventilation Load	1615 CFM	25318	72514	510 CFM	20446	0
Supply Fan Load	3266 CFM	9735	-	1032 CFM	-4078	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**124767**	**90810**	-	**43416**	**0**
Central Cooling Coil	-	124767	90810	-	0	0
Terminal Reheat Coils	-	0	-	-	43366	-
>> Total Conditioning	-	**124767**	**90810**	-	**43366**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for AHU 1-4

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 1-4	Number of zones	1
Equipment Class	CW AHU	Floor Area	1733.0 ft²
Air System Type	SZCAV	Location	New Orleans IAP, Louisiana

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Sum of space airflow rates	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	2.9	Tons	Load occurs at	Jul 1400	
Total coil load	35.1	MBH	OA DB / WB	94.6 / 79.9	°F
Sensible coil load	26.1	MBH	Entering DB / WB	82.9 / 67.5	°F
Coil CFM at Jul 1400	846	CFM	Leaving DB / WB	54.3 / 53.6	°F
Max block CFM	846	CFM	Coil ADP	52.8	°F
Sum of peak zone CFM	846	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.745		Resulting RH	45	%
ft²/Ton	592.5		Design supply temp.	55.0	°F
BTU/(hr-ft²)	20.3		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	7.02	gpm	Max zone temperature deviation	0.0	°F

Central Heating Coil Sizing Data

Max coil load	12.3	MBH	Load occurs at	Des Htg	
Coil CFM at Des Htg	846	CFM	BTU/(hr-ft²)	7.1	
Max coil CFM	846	CFM	Ent. DB / Lvg DB	62.1 / 75.6	°F
Water flow @ 20.0 °F drop	N/A				

Supply Fan Sizing Data

Actual max CFM	846	CFM	Fan motor BHP	0.62	BHP
Standard CFM	845	CFM	Fan motor kW	0.46	kW
Actual max CFM/ft²	0.49	CFM/ft²	Fan static	2.50	in wg

Outdoor Ventilation Air Data

Design airflow CFM	150	CFM	CFM/person	15.00	CFM/person
CFM/ft²	0.09	CFM/ft²			

Air System Design Load Summary for AHU 1-4

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1400 COOLING OA DB / WB 94.5 °F / 79.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	80 ft²	464	-	80 ft²	-	-
Wall Transmission	713 ft²	1640	-	713 ft²	3557	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	80 ft²	1632	-	80 ft²	3904	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	1733 ft²	0	-	1733 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	2433 W	4741	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	2000 W	6263	-	0	0	-
People	10	1886	2050	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	831	103	5%	373	0
>> Total Zone Loads	-	17457	2153	-	7834	0
Zone Conditioning	-	19798	2153	-	7499	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	0	-	0	0	-
Plenum Lighting Load	30%	2491	-	0	0	-
Return Fan Load	846 CFM	0	-	846 CFM	0	-
Ventilation Load	150 CFM	2280	6808	150 CFM	6322	0
Supply Fan Load	846 CFM	1567	-	846 CFM	-1567	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	26136	8961	-	12254	0
Central Cooling Coil	-	26136	8961	-	0	0
Central Heating Coil	-	0	-	-	12254	-
>> Total Conditioning	-	26136	8961	-	12254	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Air System Sizing Summary for AHU 1-5

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 1-5	Number of zones	1
Equipment Class	CW AHU	Floor Area	7514.0 ft²
Air System Type	SZCAV	Location	New Orleans IAP, Louisiana

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Sum of space airflow rates	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	69.7	Tons	Load occurs at	Aug 1600	
Total coil load	836.7	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	405.5	MBH	Entering DB / WB	94.7 / 79.8	°F
Coil CFM at Aug 1500	9219	CFM	Leaving DB / WB	53.9 / 53.6	°F
Max block CFM	9219	CFM	Coil ADP	51.7	°F
Sum of peak zone CFM	9219	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.485		Resulting RH	58	%
ft²/Ton	107.8		Design supply temp.	56.0	°F
BTU/(hr-ft²)	111.4		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	167.43	gpm	Max zone temperature deviation	0.0	°F

Central Heating Coil Sizing Data

Max coil load	427.5	MBH	Load occurs at	Des Htg	
Coil CFM at Des Htg	9219	CFM	BTU/(hr-ft²)	56.9	
Max coil CFM	9219	CFM	Ent. DB / Lvg DB	30.9 / 73.9	°F
Water flow @ 20.0 °F drop	N/A				

Supply Fan Sizing Data

Actual max CFM	9219	CFM	Fan motor BHP	6.71	BHP
Standard CFM	9209	CFM	Fan motor kW	5.01	kW
Actual max CFM/ft²	1.23	CFM/ft²	Fan static	2.50	in wg

Outdoor Ventilation Air Data

Design airflow CFM	9000	CFM	CFM/person	15.00	CFM/person
CFM/ft²	1.20	CFM/ft²			

Air System Design Load Summary for AHU 1-5

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1500 COOLING OA DB / WB 96.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	200 ft²	3021	-	200 ft²	-	-
Wall Transmission	6236 ft²	21636	-	6236 ft²	31113	-
Roof Transmission	7514 ft²	9428	-	7514 ft²	19723	-
Window Transmission	200 ft²	4202	-	200 ft²	9760	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	7514 ft²	0	-	7514 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	11361 W	22464	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	2000 W	6300	-	0	0	-
People	600	119515	123000	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	9328	6150	5%	3030	0
>> Total Zone Loads	-	195896	129150	-	63625	0
Zone Conditioning	-	218066	129150	-	63191	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	22000	-	0	0	-
Plenum Lighting Load	30%	11629	-	0	0	-
Return Fan Load	9219 CFM	0	-	9219 CFM	0	-
Ventilation Load	9000 CFM	136712	302059	9000 CFM	381441	0
Supply Fan Load	9219 CFM	17085	-	9219 CFM	-17085	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	405492	431209	-	427548	0
Central Cooling Coil	-	405492	431209	-	0	0
Central Heating Coil	-	0	-	-	427548	-
>> Total Conditioning	-	405492	431209	-	427548	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Air System Sizing Summary for AHU 2-1

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 2-1	Number of zones	1
Equipment Class	CW AHU	Floor Area	1200.0 ft²
Air System Type	SZCAV	Location	New Orleans IAP, Louisiana

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Sum of space airflow rates	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	1.0	Tons	Load occurs at	Jul 1500	
Total coil load	11.8	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	8.1	MBH	Entering DB / WB	88.3 / 70.1	°F
Coil CFM at Jul 1500	218	CFM	Leaving DB / WB	53.9 / 52.4	°F
Max block CFM	218	CFM	Coil ADP	50.0	°F
Sum of peak zone CFM	218	CFM	Bypass Factor	0.100	
Sensible heat ratio	0.689		Resulting RH	44	%
ft²/Ton	1224.4		Design supply temp.	55.0	°F
BTU/(hr-ft²)	9.8		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	2.35	gpm	Max zone temperature deviation	0.0	°F

Central Heating Coil Sizing Data

Max coil load	2.2	MBH	Load occurs at	Des Htg	
Coil CFM at Des Htg	218	CFM	BTU/(hr-ft²)	1.8	
Max coil CFM	218	CFM	Ent. DB / Lvg DB	59.0 / 68.3	°F
Water flow @ 20.0 °F drop	N/A				

Supply Fan Sizing Data

Actual max CFM	218	CFM	Fan motor BHP	0.16	BHP
Standard CFM	218	CFM	Fan motor kW	0.12	kW
Actual max CFM/ft²	0.18	CFM/ft²	Fan static	2.50	in wg

Outdoor Ventilation Air Data

Design airflow CFM	60	CFM	CFM/person	15.00	CFM/person
CFM/ft²	0.05	CFM/ft²			

Air System Design Load Summary for AHU 2-1

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500 COOLING OA DB / WB 96.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	0 ft²	0	-	0 ft²	-	-
Wall Transmission	0 ft²	0	-	0 ft²	0	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	1814 W	3588	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	4	769	820	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	218	41	5%	0	0
>> Total Zone Loads	-	4575	861	-	0	0
Zone Conditioning	-	5246	861	-	0	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	0	-	0	0	-
Plenum Lighting Load	30%	1857	-	0	0	-
Return Fan Load	218 CFM	0	-	218 CFM	0	-
Ventilation Load	60 CFM	595	2797	60 CFM	2589	0
Supply Fan Load	218 CFM	404	-	218 CFM	-404	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	8103	3658	-	2185	0
Central Cooling Coil	-	8103	3658	-	0	0
Central Heating Coil	-	0	-	-	2185	-
>> Total Conditioning	-	8103	3658	-	2185	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Air System Sizing Summary for AHU 2-2

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 2-2	Number of zones	1
Equipment Class	CW AHU	Floor Area	6228.0 ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	25.3	Tons	Load occurs at	Aug 1500	
Total coil load	303.1	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	147.8	MBH	Entering DB / WB	93.9 / 79.1	°F
Coil CFM at Aug 1500	3291	CFM	Leaving DB / WB	52.2 / 52.0	°F
Max block CFM at Sep 1700	3357	CFM	Coil ADP	50.1	°F
Sum of peak zone CFM	3357	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.488		Resulting RH	52	%
ft²/Ton	246.6		Design supply temp.	55.0	°F
BTU/(hr-ft²)	48.7		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	60.65	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Sep 1700	3357	CFM	Fan motor BHP	3.91	BHP
Standard CFM	3354	CFM	Fan motor kW	2.92	kW
Actual max CFM/ft²	0.54	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	3114	CFM	CFM/person	16.22	CFM/person
CFM/ft²	0.50	CFM/ft²			

Air System Design Load Summary for AHU 2-2

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1500 COOLING OA DB / WB 95.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	307 ft²	2760	-	307 ft²	-	-
Wall Transmission	2003 ft²	6802	-	2003 ft²	9993	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	307 ft²	6451	-	307 ft²	14982	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	6054 W	11970	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	1000 W	3150	-	0	0	-
People	192	38245	39360	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**69376**	**39360**	-	**24975**	**0**
Zone Conditioning	-	81303	39360	-	14247	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	0	-	0	0	-
Plenum Lighting Load	30%	6196	-	0	0	-
Return Fan Load	3291 CFM	0	-	1007 CFM	0	-
Ventilation Load	3052 CFM	50548	115888	934 CFM	31010	0
Supply Fan Load	3291 CFM	9777	-	1007 CFM	-3982	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**147825**	**155248**	-	**41275**	**0**
Central Cooling Coil	-	147825	155247	-	0	0
Terminal Reheat Coils	-	0	-	-	41275	-
>> Total Conditioning	-	**147825**	**155247**	-	**41275**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for AHU 2-3

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 2-3	Number of zones	1
Equipment Class	CW AHU	Floor Area	6000.0 ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	14.2	Tons	Load occurs at	Jul 1400	
Total coil load	170.8	MBH	OA DB / WB	94.5 / 79.9	°F
Sensible coil load	131.5	MBH	Entering DB / WB	82.6 / 66.2	°F
Coil CFM at Jul 1400	4020	CFM	Leaving DB / WB	52.2 / 51.5	°F
Max block CFM at Jul 1700	4281	CFM	Coil ADP	50.6	°F
Sum of peak zone CFM	4281	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.770		Resulting RH	42	%
ft²/Ton	421.5		Design supply temp.	55.0	°F
BTU/(hr-ft²)	28.5		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	34.18	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Jul 1700	4281	CFM	Fan motor BHP	4.99	BHP
Standard CFM	4277	CFM	Fan motor kW	3.72	kW
Actual max CFM/ft²	0.71	CFM/ft²	Fan static	4.00	In wg

Outdoor Ventilation Air Data

Design airflow CFM	660	CFM	CFM/person	15.00	CFM/person
CFM/ft²	0.11	CFM/ft²			

Air System Design Load Summary for AHU 2-3

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1400 COOLING OA DB / WB 94.5 °F / 79.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	360 ft²	2086	-	360 ft²	-	-
Wall Transmission	2412 ft²	6700	-	2412 ft²	12034	-
Roof Transmission	700 ft²	1001	-	700 ft²	1837	-
Window Transmission	360 ft²	7344	-	360 ft²	17568	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	9072 W	17675	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	15000 W	46973	-	0	0	-
People	44	8299	9020	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**90078**	**9020**	-	**31439**	**0**
Zone Conditioning	-	98453	9020	-	29312	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	2335	-	0	0	-
Plenum Lighting Load	30%	9286	-	0	0	-
Return Fan Load	4020 CFM	0	-	1284 CFM	0	-
Ventilation Load	620 CFM	9461	30270	198 CFM	7975	0
Supply Fan Load	4020 CFM	11997	-	1284 CFM	-5078	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**131533**	**39290**	-	**32208**	**0**
Central Cooling Coil	-	131533	39292	-	-14194	0
Terminal Reheat Coils	-	0	-	-	46403	-
>> Total Conditioning	-	**131533**	**39292**	-	**32208**	**0**
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Air System Sizing Summary for AHU 2-4

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 2-4	Number of zones	1	
Equipment Class	CW AHU	Floor Area	7984.0	ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	34.3	Tons	Load occurs at	Jul 1500	
Total coil load	411.1	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	204.3	MBH	Entering DB / WB	92.2 / 77.9	°F
Coil CFM at Jul 1500	4738	CFM	Leaving DB / WB	52.2 / 52.0	°F
Max block CFM at Jul 1700	4895	CFM	Coil ADP	50.1	°F
Sum of peak zone CFM	4895	CFM	Bypass Factor	0.060	
Sensible heat ratio	0.497		Resulting RH	56	%
ft²/Ton	233.1		Design supply temp.	55.0	°F
BTU/(hr-ft²)	51.5		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	82.26	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Jul 1700	4895	CFM	Fan motor BHP	5.70	BHP
Standard CFM	4889	CFM	Fan motor kW	4.25	kW
Actual max CFM/ft²	0.61	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	3992	CFM	CFM/person	11.09	CFM/person
CFM/ft²	0.50	CFM/ft²			

Air System Design Load Summary for AHU 2-4

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:68PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500 COOLING OA DB / WB 95.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	**Details**	**Sensible (BTU/hr)**	**Latent (BTU/hr)**	**Details**	**Sensible (BTU/hr)**	**Latent (BTU/hr)**
Window & Skylight Solar Loads	360 ft²	2080	-	360 ft²	-	-
Wall Transmission	2416 ft²	6562	-	2416 ft²	12054	-
Roof Transmission	700 ft²	925	-	700 ft²	1837	-
Window Transmission	360 ft²	7564	-	360 ft²	17568	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	7760 W	15344	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	360	69235	73800	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**101710**	**73800**	-	**31459**	**0**
Zone Conditioning	-	116770	73800	-	19730	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	2157	-	0	0	-
Plenum Lighting Load	30%	7944	-	0	0	-
Return Fan Load	4738 CFM	0	-	1468 CFM	0	-
Ventilation Load	3864 CFM	63287	133035	1198 CFM	41305	0
Supply Fan Load	4738 CFM	14096	-	1468 CFM	-5806	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**204254**	**206835**	-	**55229**	**0**
Central Cooling Coil	-	204254	206835	-	0	0
Terminal Reheat Coils	-	0	-	-	55222	-
>> Total Conditioning	-	**204254**	**206835**	-	**55222**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for AHU 3-1

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 3-1	Number of zones	1	
Equipment Class	CW AHU	Floor Area	4534.0	ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	12.2	Tons	Load occurs at	Aug 1400	
Total coil load	146.8	MBH	OA DB / WB	94.5 / 79.9	°F
Sensible coil load	99.8	MBH	Entering DB / WB	86.8 / 69.6	°F
Coil CFM at Aug 1400	2678	CFM	Leaving DB / WB	52.2 / 51.6	°F
Max block CFM at Sep 1500	2874	CFM	Coil ADP	50.4	°F
Sum of peak zone CFM	2874	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.684		Resulting RH	43	%
ft²/Ton	373.1		Design supply temp.	55.0	°F
BTU/(hr-ft²)	32.2		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	29.18	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Sep 1500	2874	CFM	Fan motor BHP	3.35	BHP
Standard CFM	2871	CFM	Fan motor kW	2.50	kW
Actual max CFM/ft²	0.63	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	840	CFM	CFM/person	20.00	CFM/person
CFM/ft²	0.19	CFM/ft²			

Air System Design Load Summary for AHU 3-1

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1400 COOLING OA DB / WB 94.5 °F / 79.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	180 ft²	1773	-	180 ft²	-	-
Wall Transmission	2077 ft²	7039	-	2077 ft²	10363	-
Roof Transmission	3600 ft²	4956	-	3600 ft²	9449	-
Window Transmission	180 ft²	3672	-	180 ft²	8784	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	5386 W	10495	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	8000 W	25052	-	0	0	-
People	42	7922	8610	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**60910**	**8610**	-	**28596**	**0**
Zone Conditioning	-	65495	8610	-	26653	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	11564	-	0	0	-
Plenum Lighting Load	30%	5514	-	0	0	-
Return Fan Load	2678 CFM	0	-	862 CFM	0	-
Ventilation Load	783 CFM	9250	37409	252 CFM	10144	0
Supply Fan Load	2678 CFM	8000	-	862 CFM	-3409	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**99823**	**46019**	-	**33388**	**0**
Central Cooling Coil	-	99823	46020	-	-4720	0
Terminal Reheat Coils	-	0	-	-	38108	-
>> Total Conditioning	-	**99823**	**46020**	-	**33388**	**0**
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Air System Sizing Summary for AHU 3-2

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 3-2		Number of zones	1
Equipment Class	CW AHU		Floor Area	5529.0 ft²
Air System Type	VAV		Location	New Orleans IAP, Louisiana

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load		Calculation Months	Jan to Dec
Space CFM	Individual peak space loads		Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	13.6	Tons	Load occurs at	Aug 1400	
Total coil load	163.6	MBH	OA DB / WB	94.6 / 79.9	°F
Sensible coil load	109.0	MBH	Entering DB / WB	87.1 / 70.2	°F
Coil CFM at Aug 1400	2900	CFM	Leaving DB / WB	52.2 / 51.6	°F
Max block CFM at Sep 1500	3105	CFM	Coil ADP	50.4	°F
Sum of peak zone CFM	3105	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.667		Resulting RH	43	%
ft²/Ton	405.7		Design supply temp.	55.0	°F
BTU/(hr-ft²)	29.6		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	32.73	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Sep 1500	3105	CFM	Fan motor BHP	3.62	BHP
Standard CFM	3102	CFM	Fan motor kW	2.70	kW
Actual max CFM/ft²	0.56	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	1000	CFM	CFM/person	20.00	CFM/person
CFM/ft²	0.18	CFM/ft²			

Air System Design Load Summary for AHU 3-2

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1400 COOLING OA DB / WB 94.5 °F / 79.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	180 ft²	1773	-	180 ft²	-	-
Wall Transmission	2338 ft²	7886	-	2338 ft²	11665	-
Roof Transmission	3600 ft²	4956	-	3600 ft²	9449	-
Window Transmission	180 ft²	3672	-	180 ft²	8784	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	6568 W	12798	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	8000 W	25052	-	0	0	-
People	50	9431	10250	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**65568**	**10250**	-	**29898**	**0**
Zone Conditioning	-	70967	10250	-	27857	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	11564	-	0	0	-
Plenum Lighting Load	30%	6723	-	0	0	-
Return Fan Load	2900 CFM	0	-	931 CFM	0	-
Ventilation Load	934 CFM	11096	44291	300 CFM	12077	0
Supply Fan Load	2900 CFM	8661	-	931 CFM	-3683	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**109012**	**54541**	-	**36251**	**0**
Central Cooling Coil	-	109012	54543	-	-3982	0
Terminal Reheat Coils	-	0	-	-	40233	-
>> Total Conditioning	-	**109012**	**54543**	-	**36251**	**0**
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Air System Sizing Summary for AHU 3-3

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 3-3		Number of zones	1
Equipment Class	CW AHU		Floor Area	8100.0 ft²
Air System Type	VAV		Location	New Orleans IAP, Louisiana

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	14.4	Tons	Load occurs at	Jul 1400	
Total coil load	172.3	MBH	OA DB / WB	94.6 / 79.9	°F
Sensible coil load	117.1	MBH	Entering DB / WB	87.4 / 70.0	°F
Coil CFM at Jul 1400	3084	CFM	Leaving DB / WB	52.2 / 51.6	°F
Max block CFM at Jul 1700	3269	CFM	Coil ADP	50.4	°F
Sum of peak zone CFM	3269	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.879		Resulting RH	43	%
ft²/Ton	564.0		Design supply temp.	55.0	°F
BTU/(hr-ft²)	21.3		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	34.49	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Jul 1700	3269	CFM	Fan motor BHP	3.81	BHP
Standard CFM	3265	CFM	Fan motor kW	2.84	kW
Actual max CFM/ft²	0.40	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	1000	CFM	CFM/person	20.00	CFM/person
CFM/ft²	0.12	CFM/ft²			

Air System Design Load Summary for AHU 3-3

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1400 COOLING OA DB / WB 94.6 °F / 79.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	180 ft²	1043	-	180 ft²	-	-
Wall Transmission	2338 ft²	5607	-	2338 ft²	11665	-
Roof Transmission	3600 ft²	5148	-	3600 ft²	9449	-
Window Transmission	180 ft²	3672	-	180 ft²	8784	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	9623 W	18749	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	8000 W	25052	-	0	0	-
People	50	9431	10250	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**68701**	**10250**	-	**29898**	**0**
Zone Conditioning	-	75607	10250	-	27791	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	12011	-	0	0	-
Plenum Lighting Load	30%	9850	-	0	0	-
Return Fan Load	3084 CFM	0	-	981 CFM	0	-
Ventilation Load	943 CFM	10422	44996	300 CFM	12080	0
Supply Fan Load	3084 CFM	9200	-	981 CFM	-3877	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**117090**	**55246**	-	**35994**	**0**
Central Cooling Coil	-	117090	55248	-	-4835	0
Terminal Reheat Coils	-	0	-	-	40829	-
>> Total Conditioning	-	**117090**	**55248**	-	**35994**	**0**
Key:	**Positive values are clg loads** **Negative values are htg loads**			**Positive values are htg loads** **Negative values are clg loads**		

Air System Sizing Summary for AHU 3-4

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 3-4		Number of zones	1	
Equipment Class	CW AHU		Floor Area	4534.0	ft²
Air System Type	VAV		Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load		Calculation Months	Jan to Dec	
Space CFM	Individual peak space loads		Sizing Data	Calculated	

Central Cooling Coil Sizing Data

Total coil load	12.1	Tons	Load occurs at	Aug 1400	
Total coil load	145.2	MBH	OA DB / WB	94.5 / 79.9	°F
Sensible coil load	99.3	MBH	Entering DB / WB	86.8 / 69.6	°F
Coil CFM at Aug 1400	2664	CFM	Leaving DB / WB	52.2 / 51.6	°F
Max block CFM at Sep 1500	2869	CFM	Coil ADP	50.4	°F
Sum of peak zone CFM	2869	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.684		Resulting RH	43	%
ft²/Ton	374.7		Design supply temp.	55.0	°F
BTU/(hr-ft²)	32.0		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	29.06	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Sep 1500	2869	CFM	Fan motor BHP	3.34	BHP
Standard CFM	2866	CFM	Fan motor kW	2.49	kW
Actual max CFM/ft²	0.63	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	840	CFM	CFM/person	20.00	CFM/person
CFM/ft²	0.19	CFM/ft²			

Air System Design Load Summary for AHU 3-4

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1400 COOLING OA DB / WB 94.5 °F / 79.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	180 ft²	1773	-	180 ft²	-	-
Wall Transmission	2077 ft²	6363	-	2077 ft²	10363	-
Roof Transmission	3600 ft²	4956	-	3600 ft²	9449	-
Window Transmission	180 ft²	3672	-	180 ft²	8784	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	5386 W	10495	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	8000 W	25052	-	0	0	-
People	42	7922	8610	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**60233**	**8610**	-	**28596**	**0**
Zone Conditioning	-	65096	8610	-	26653	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	11564	-	0	0	-
Plenum Lighting Load	30%	5514	-	0	0	-
Return Fan Load	2664 CFM	0	-	861 CFM	0	-
Ventilation Load	780 CFM	9205	37269	252 CFM	10144	0
Supply Fan Load	2664 CFM	7959	-	861 CFM	-3402	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**99338**	**45879**	-	**33395**	**0**
Central Cooling Coil	-	99338	45881	-	-4690	0
Terminal Reheat Coils	-	0	-	-	38085	-
>> Total Conditioning	-	**99338**	**45881**	-	**33395**	**0**
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Air System Sizing Summary for AHU 4-1

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 4-1	Number of zones	1	
Equipment Class	CW AHU	Floor Area	5600.0	ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	10.1	Tons	Load occurs at	Aug 1400	
Total coil load	121.2	MBH	OA DB / WB	94.5 / 79.9	°F
Sensible coil load	92.0	MBH	Entering DB / WB	89.1 / 68.9	°F
Coil CFM at Aug 1400	2315	CFM	Leaving DB / WB	52.2 / 51.4	°F
Max block CFM at Sep 1500	2475	CFM	Coil ADP	50.3	°F
Sum of peak zone CFM	2475	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.759		Resulting RH	41	%
ft²/Ton	554.4		Design supply temp.	55.0	°F
BTU/(hr-ft²)	21.6		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	24.25	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Sep 1500	2475	CFM	Fan motor BHP	2.88	BHP
Standard CFM	2472	CFM	Fan motor kW	2.15	kW
Actual max CFM/ft²	0.44	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	520	CFM	CFM/person	20.00	CFM/person
CFM/ft²	0.09	CFM/ft²			

Air System Design Load Summary for AHU 4-1

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1400 COOLING OA DB / WB 94.5 °F / 79.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 26.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	130 ft²	1281	-	130 ft²	-	-
Wall Transmission	3344 ft²	10753	-	3344 ft²	16684	-
Roof Transmission	5600 ft²	7710	-	5600 ft²	14699	-
Window Transmission	130 ft²	2652	-	130 ft²	6344	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	6653 W	12962	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	4000 W	12526	-	0	0	-
People	26	4904	5330	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**52788**	**5330**	-	**37727**	**0**
Zone Conditioning	-	56645	5330	-	35137	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	17989	-	0	0	-
Plenum Lighting Load	30%	6810	-	0	0	-
Return Fan Load	2315 CFM	0	-	742 CFM	0	-
Ventilation Load	486 CFM	3630	23886	156 CFM	6275	0
Supply Fan Load	2315 CFM	6911	-	742 CFM	-2935	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**91984**	**29216**	-	**38477**	**0**
Central Cooling Coil	-	91984	29217	-	-6502	0
Terminal Reheat Coils	-	0	-	-	44979	-
>> Total Conditioning	-	**91984**	**29217**	-	**38477**	**0**
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Air System Sizing Summary for AHU 4-2

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Information

Air System Name	AHU 4-2	Number of zones	1	
Equipment Class	CW AHU	Floor Area	5600.0	ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	12.9	Tons	Load occurs at	Jul 1400	
Total coil load	155.2	MBH	OA DB / WB	94.5 / 79.9	°F
Sensible coil load	100.7	MBH	Entering DB / WB	90.1 / 71.9	°F
Coil CFM at Jul 1400	2467	CFM	Leaving DB / WB	52.2 / 51.6	°F
Max block CFM at Jul 1600	2612	CFM	Coil ADP	50.2	°F
Sum of peak zone CFM	2612	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.649		Resulting RH	44	%
ft²/Ton	433.0		Design supply temp.	55.0	°F
BTU/(hr-ft²)	27.7		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	31.05	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Jul 1600	2612	CFM	Fan motor BHP	3.04	BHP
Standard CFM	2609	CFM	Fan motor kW	2.27	kW
Actual max CFM/ft²	0.47	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	1000	CFM	CFM/person	20.00	CFM/person
CFM/ft²	0.18	CFM/ft²			

Air System Design Load Summary for AHU 4-2

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1400 COOLING OA DB / WB 94.5 °F / 79.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	130 ft²	753	-	130 ft²	-	-
Wall Transmission	3344 ft²	9237	-	3344 ft²	16684	-
Roof Transmission	5600 ft²	8007	-	5600 ft²	14699	-
Window Transmission	130 ft²	2652	-	130 ft²	6344	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	6653 W	12962	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	4000 W	12526	-	0	0	-
People	50	9431	10250	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**55568**	**10250**	-	**37727**	**0**
Zone Conditioning	-	60483	10250	-	35141	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	18684	-	0	0	-
Plenum Lighting Load	30%	6810	-	0	0	-
Return Fan Load	2467 CFM	0	-	783 CFM	0	-
Ventilation Load	944 CFM	7362	44233	300 CFM	12069	0
Supply Fan Load	2467 CFM	7357	-	783 CFM	-3098	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**100695**	**54483**	-	**44112**	**0**
Central Cooling Coil	-	100695	54484	-	-1417	0
Terminal Reheat Coils	-	0	-	-	45529	-
>> Total Conditioning	-	**100695**	**54484**	-	**44112**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Monthly Simulation Results for AHU 1-1

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:57PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Central Heating Coil Load (kBTU)	Central Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	1340	8060	2362	667	2747	565
February	601	6397	1875	603	2388	491
March	1687	2333	684	667	2508	516
April	10320	107	31	646	2627	540
May	21024	79	23	667	2627	540
June	28505	0	0	646	2508	516
July	40536	0	0	667	2747	565
August	36113	0	0	667	2508	516
September	25007	73	22	646	2627	540
October	18776	124	36	667	2747	565
November	2439	2559	750	646	2388	491
December	1239	8792	2577	667	2747	565
Total	**187586**	**28524**	**8360**	**7856**	**31167**	**6410**

Monthly Simulation Results for AHU 1-2

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:57PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	17544	4863	1422	883	2487	565
February	10080	2186	641	753	2163	491
March	21234	1329	390	911	2271	516
April	44920	237	69	1044	2379	540
May	68410	139	41	1211	2379	540
June	81892	0	0	1217	2271	516
July	111437	0	0	1364	2487	565
August	98696	0	0	1316	2271	516
September	73845	140	41	1144	2379	540
October	60479	282	83	1134	2487	565
November	21958	2024	593	869	2163	491
December	18497	2828	829	848	2487	565
Total	**528991**	**14019**	**4108**	**12692**	**28224**	**6410**

Monthly Simulation Results for AHU 1-3

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:57PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	13354	906	266	556	2634	1412
February	9841	359	105	481	2291	1228
March	15518	101	30	572	2405	1289
April	26014	0	0	647	2520	1351
May	35824	0	0	736	2520	1351
June	40633	0	0	735	2405	1289
July	52984	0	0	822	2634	1412
August	48675	0	0	809	2405	1289
September	38903	0	0	723	2520	1351
October	35025	0	0	743	2634	1412
November	15885	110	32	566	2291	1228
December	13569	268	78	532	2634	1412
Total	**346225**	**1745**	**511**	**7923**	**29894**	**16025**

Monthly Simulation Results for AHU 1-4

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:57PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Central Heating Coil Load (kBTU)	Central Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	2428	129	38	185	687	565
February	1841	27	8	167	598	491
March	3060	3	1	185	627	516
April	4984	0	0	179	657	540
May	6599	1	0	185	657	540
June	7151	0	0	179	627	516
July	8803	0	0	185	687	565
August	8027	0	0	185	627	516
September	6599	1	0	179	657	540
October	6032	1	0	185	687	565
November	2881	1	0	179	598	491
December	2232	59	17	185	687	565
Total	60636	221	65	2180	7798	6410

Monthly Simulation Results for AHU 1-5

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:57PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Central Heating Coil Load (kBTU)	Central Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	22138	24734	7249	2018	3209	565
February	23503	24976	7320	1823	2790	491
March	33536	11273	3304	2018	2930	516
April	43464	1678	492	1954	3069	540
May	68440	293	86	2019	3069	540
June	94632	0	0	1955	2930	516
July	126542	0	0	2020	3209	565
August	114065	0	0	2021	2930	516
September	86266	644	189	1954	3069	540
October	64844	880	258	2019	3209	565
November	34189	13453	3943	1953	2790	491
December	24517	33011	9675	2018	3209	565
Total	736136	110942	32514	23771	36413	6410

Monthly Simulation Results for AHU 2-1

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:57PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Central Heating Coil Load (kBTU)	Central Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	1886	0	0	48	512	0
February	1494	0	0	43	446	0
March	1830	0	0	48	468	0
April	2158	0	0	46	490	0
May	2510	0	0	48	490	0
June	2492	0	0	46	468	0
July	2988	0	0	48	512	0
August	2725	0	0	48	468	0
September	2529	0	0	46	490	0
October	2508	0	0	48	512	0
November	1792	0	0	46	446	0
December	1784	0	0	48	512	0
Total	**26697**	**0**	**0**	**562**	**5815**	**0**

Monthly Simulation Results for AHU 2-2

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:57PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	6244	2130	624	470	1710	282
February	4696	1411	413	433	1487	246
March	9046	201	59	481	1561	258
April	19793	0	0	499	1635	270
May	28926	0	0	562	1635	270
June	39940	0	0	585	1561	258
July	50695	0	0	617	1710	282
August	48925	0	0	639	1561	258
September	34556	0	0	559	1635	270
October	27725	0	0	560	1710	282
November	11077	252	74	475	1487	246
December	8414	2135	626	475	1710	282
Total	**290036**	**6128**	**1796**	**6344**	**19402**	**3205**

Monthly Simulation Results for AHU 2-3

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:57PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	20872	1852	543	747	2562	4237
February	16874	789	231	640	2228	3684
March	22453	571	167	767	2339	3868
April	30055	100	29	865	2451	4052
May	36804	38	11	970	2461	4052
June	38782	0	0	966	2339	3868
July	46482	0	0	1072	2562	4237
August	42873	0	0	1030	2339	3868
September	36484	45	13	925	2451	4052
October	34349	114	33	929	2562	4237
November	21442	945	277	736	2228	3684
December	19950	862	253	709	2562	4237
Total	**367421**	**5317**	**1558**	**10356**	**29077**	**48076**

Monthly Simulation Results for AHU 2-4

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:57PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	19448	1377	404	909	2192	0
February	11421	340	100	790	1906	0
March	22719	164	48	939	2001	0
April	46156	0	0	1052	2097	0
May	67981	0	0	1177	2097	0
June	79127	0	0	1157	2001	0
July	106108	0	0	1278	2192	0
August	94305	0	0	1236	2001	0
September	72807	0	0	1113	2097	0
October	61403	3	1	1132	2192	0
November	23249	249	73	899	1906	0
December	20067	336	99	863	2192	0
Total	**624791**	**2470**	**724**	**12545**	**24873**	**0**

Monthly Simulation Results for AHU 3-1

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:57PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	12088	1024	300	482	1521	2260
February	9572	408	120	417	1323	1965
March	14243	144	42	495	1389	2063
April	21323	0	0	558	1455	2161
May	27725	1	0	627	1455	2161
June	30046	0	0	521	1389	2063
July	37178	0	0	690	1521	2260
August	34474	0	0	675	1389	2063
September	28428	0	0	609	1455	2161
October	26382	0	0	624	1521	2260
November	13680	317	93	485	1323	1965
December	11839	409	120	462	1521	2260
Total	**266979**	**2303**	**675**	**6745**	**17264**	**25641**

Monthly Simulation Results for AHU 3-2

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	13194	913	268	523	1855	2260
February	10372	349	102	453	1613	1965
March	15528	118	34	537	1694	2063
April	23532	0	0	606	1775	2161
May	30793	0	0	681	1775	2161
June	33518	0	0	675	1694	2063
July	41757	0	0	749	1855	2260
August	38668	0	0	734	1694	2063
September	31798	0	0	662	1775	2161
October	29405	0	0	680	1855	2260
November	14999	233	68	527	1613	1965
December	12978	324	95	500	1855	2260
Total	**296538**	**1938**	**568**	**7326**	**21052**	**25641**

Monthly Simulation Results for AHU 3-3

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	14048	708	207	540	2718	2260
February	11283	166	49	468	2363	1965
March	16784	77	23	564	2482	2063
April	25490	0	0	646	2600	2161
May	33637	0	0	740	2600	2161
June	36640	0	0	737	2482	2063
July	45117	0	0	814	2718	2260
August	41329	0	0	787	2482	2063
September	33458	0	0	697	2600	2161
October	30076	0	0	695	2718	2260
November	15661	123	36	539	2363	1965
December	13783	186	55	514	2718	2260
Total	**317306**	**1259**	**369**	**7741**	**30842**	**25641**

Monthly Simulation Results for AHU 3-4

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2008
03:58PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	12084	1020	299	482	1521	2260
February	9549	406	119	416	1323	1965
March	14210	146	43	494	1389	2063
April	21291	0	0	557	1455	2161
May	27679	1	0	625	1455	2161
June	30003	0	0	620	1389	2063
July	37049	0	0	687	1521	2260
August	34405	0	0	673	1389	2063
September	28378	0	0	608	1455	2161
October	26399	0	0	624	1521	2260
November	13693	311	91	485	1323	1965
December	11849	405	119	462	1521	2260
Total	**266588**	**2289**	**671**	**6733**	**17264**	**25641**

Monthly Simulation Results for AHU 4-1

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	8259	1797	527	362	1879	1130
February	7072	849	249	316	1634	982
March	10927	174	51	370	1716	1032
April	17033	0	0	431	1797	1081
May	23090	0	0	515	1797	1081
June	25208	0	0	522	1716	1032
July	30452	0	0	584	1879	1130
August	28844	0	0	577	1716	1032
September	22620	0	0	493	1797	1081
October	20620	0	0	491	1879	1130
November	9903	366	107	361	1634	982
December	8288	1213	355	357	1879	1130
Total	**212315**	**4399**	**1289**	**5378**	**21323**	**12820**

Monthly Simulation Results for AHU 4-2

Project Name: Jackson Barracks
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
03:58PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	8447	2047	600	384	1879	1130
February	6667	863	253	334	1634	982
March	11260	247	72	397	1716	1032
April	19290	2	1	465	1797	1081
May	27629	0	0	561	1797	1081
June	31280	0	0	570	1716	1032
July	39183	0	0	635	1879	1130
August	35860	0	0	616	1716	1032
September	27174	0	0	520	1797	1081
October	23146	13	4	504	1879	1130
November	10250	612	179	380	1634	982
December	8595	1429	419	378	1879	1130
Total	**248781**	**5213**	**1528**	**5742**	**21323**	**12820**

1. General Details:

Plant Name ..... **CENTRAL PLANT**
Plant Type ..... **Chiller Plant**

2. Air Systems served by Plant:

Air System Name	Mult.
AHU 1-1	1
AHU 1-2	1
AHU 1-3	1
AHU 1-4	1
AHU 2-1	1
AHU 2-2	1
AHU 2-3	1
AHU 2-4	1
AHU 3-1	1
AHU 3-2	1
AHU 3-3	1
AHU 1-5	1
AHU 3-4	1
AHU 4-1	1
AHU 4-2	1

3: Configuration

Number of Chillers **3**
Plant Control ..... **Equal Unloading**
Design LCHWT ..... **42.0** °F
Maximum LCHWT ..... **44.0** °F
Cooling Tower Configuration ..... **One tower for each W/C chiller**

4: Schedule of Equipment

Sequence	Chiller Name	Full Load Capacity (Tons)	Cooler Flow Rate (gpm)	Condenser Flow Rate (gpm)	Cooling Tower Name	Tower Flow Rate (gpm)
CH-1	Sample Chiller	300.0	600.0	0.0	<none>	0.0
CH-2	Sample Chiller	300.0	600.0	0.0	<none>	0.0
CH-3	Sample Chiller	300.0	600.0	0.0	<none>	0.0
	Totals:	900.0	1800.0	0.0	Totals:	0.0

Est. Max Load ..... **288.9** Tons

5: Distribution

Distribution System

Type ..... **Primary/Secondary, Variable Speed Secondary**
Coil Delta-T at Design ..... **10.0** °F
Pipe Heat Gain Factor ..... **0.0** %

Fluid Properties

Name ..... **Fresh Water**
Density ..... **62.4** lb/ft³
Specific Heat ..... **1.00** BTU / (lb - °F)

Primary Loop

Pump for	Flow (gpm)	Head (ft wg)	Mechanical Efficiency (%)	Electrical Efficiency (%)
CH-1	600.0	40.0	80.0	94.0
CH-2	600.0	40.0	80.0	94.0
CH-3	600.0	40.0	80.0	94.0

Secondary Loop

	Flow (gpm)	Head (ft wg)	Mechanical Efficiency (%)	Electrical Efficiency (%)
Design	1800.0	100.0	80.0	94.0

Control Head ..... **15.0** ft wg
Minimum Pump Flow ..... **30.0** %

Cooling Plant Sizing Summary for CENTRAL PLANT

Jackson Barracks
L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
04:06PM

1. **Plant Information:**
   Plant Name ..... **CENTRAL PLANT**
   Plant Type ..... **Chiller Plant**
   Design Weather ..... **New Orleans IAP, Louisiana**

2. **Cooling Plant Sizing Data:**
   Maximum Plant Load ..... **292.8** Tons
   Load occurs at ..... **Aug 1500**
   ft²/Ton ..... **305.6** ft²/Ton
   Floor area served by plant ..... **89486.0** ft²

3. **Coincident Air System Cooling Loads for Aug 1500**

Air System Name	Mult.	System Cooling Coil Load (Tons)
AHU 1-1	1	15.8
AHU 1-2	1	37.7
AHU 1-3	1	18.0
AHU 1-4	1	2.9
AHU 2-1	1	1.0
AHU 2-2	1	25.3
AHU 2-3	1	14.1
AHU 2-4	1	34.0
AHU 3-1	1	12.1
AHU 3-2	1	13.6
AHU 3-3	1	14.1
AHU 1-5	1	69.7
AHU 3-4	1	12.1
AHU 4-1	1	10.0
AHU 4-2	1	12.6

System loads are for coils whose cooling source is ' Chilled Water ' .

Chiller Input Data

Sample Chiller

General Details

Chiller Name ..... **Sample Chiller**
Chiller Type ..... **Air-Cooled Packaged Screw**
Data Source ..... **User Input**

Notes:

Design Inputs

Full Load LCHWT	**42.0**	°F
Full Load OAT	**95.0**	°F
Full Load Capacity	**300.0**	Tons
Full Load Power	**1.200**	kW/Ton
Minimum OAT Setpoint	**0.0**	°F
Minimum Load	**20.0**	%
Hot Gas Bypass	**No**	
Cooler Flow Rate	**600.0**	gpm
Cooler Pressure Drop	**15.0**	ft wg

Chiller Performance (kW/Ton)

OAT°F	Max Cap	100%	90%	80%	70%	60%	50%	40%	30%	20%
125.0	1.912	1.912	1.938	1.968	2.024	2.096	2.182	2.276	2.792	2.960
95.0	1.200	1.200	1.208	1.215	1.238	1.317	1.355	1.395	1.622	1.689
85.0	1.061	1.061	1.063	1.066	1.078	1.162	1.188	1.221	1.372	1.427
75.0	0.950	0.950	0.945	0.941	0.943	1.044	1.056	1.077	1.180	1.228
0.0	0.868	0.868	0.864	0.839	0.827	0.908	0.892	0.873	0.908	0.820

Performance LCHWT Factor a	**-0.0095**	1/F
Performance LCHWT Factor b	**0.0000**	1/F²

Chiller Capacity (Tons)

OAT°F	Max Cap	100%	90%	80%	70%	60%	50%	40%	30%	20%
125.0	300.0	300.0	270.0	240.0	210.0	180.0	150.0	120.0	90.0	60.0
95.0	300.0	300.0	270.0	240.0	210.0	180.0	150.0	120.0	90.0	60.0
85.0	300.0	300.0	270.0	240.0	210.0	180.0	150.0	120.0	90.0	60.0
75.0	300.0	300.0	270.0	240.0	210.0	180.0	150.0	120.0	90.0	60.0
0.0	300.0	300.0	270.0	240.0	210.0	180.0	150.0	120.0	90.0	60.0

Capacity LCHWT Factor a	**0.0000**	1/F
Capacity LCHWT Factor b	**0.0000**	1/F²

Monthly Simulation Results for CENTRAL PLANT

Jackson Barracks
L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
04:01PM

Plant Simulation Results (Table 1) :

Month	Cooling Coil Load (kBTU)	Plant Load (kBTU)	Chiller Output (kBTU)	Chiller Input (kWh)	Primary Chilled Water Pump (kWh)	Secondary Chilled Water Pump (kWh)
January	173375	201357	201357	19094	7337	3142
February	134864	159958	159958	15066	6579	2818
March	214034	241741	241741	23283	7264	3112
April	356824	382843	382843	39273	7084	3034
May	507071	535055	535055	57918	7337	3143
June	599847	627273	627273	71351	7174	3084
July	777310	805854	805854	94038	7391	3232
August	707984	736411	736411	85340	7409	3204
September	548851	576029	576029	62882	7102	3058
October	467168	495116	495116	53120	7318	3141
November	213098	239980	239980	23379	7048	3019
December	177602	205309	205309	19648	7264	3112
Total	**4877026**	**5206926**	**5206926**	**564391**	**86308**	**37100**

1. General Details:

Building Name ..... **141 ST READINESS CENTER**

2. Plants Included in this Building:

Plant Name
CENTRAL PLANT

3. Air Systems Included in this Building:

System Name	Mult.
AHU 1-1	1
AHU 1-2	1
AHU 1-3	1
AHU 1-4	1
AHU 2-1	1
AHU 2-2	1
AHU 2-3	1
AHU 2-4	1
AHU 3-1	1
AHU 3-2	1
AHU 3-3	1
AHU 1-5	1
AHU 3-4	1
AHU 4-1	1
AHU 4-2	1

4: Miscellaneous Energy

Name	Energy/Fuel Type	Peak use	Schedule
DOMESTIC HOT WATER	Natural Gas	2000.0 MBH	DRILL

5: Meters

Electric ..... **Electric Rate**
Natural Gas ..... **Fuel Rate**

6: Miscellaneous Data

Average Building Power Factor ..... **90.00 %**
Source Electric Generating Efficiency ..... **28.00 %**
Additional Floor Area ..... **5000.0 ft²**

Electric Rate

General Details

Rate Name	**Electric Rate**	
Currency	$	
Rate Type	Simple	
Energy Units	kWh	
Conversion	1.00000	kWh/kWh
Demand Units	kW	
Flat Price	0.08000	$/kWh
Customer Charge	0.00	$
Minimum Charge	0.00	$
Tax Rate	0.00	%

Fuel Rate

General Details

Rate Name	Fuel Rate	
Currency	$	
Rate Type	Simple	
Energy Units	Therm	
Conversion	100.00000	kBTU/Therm
Demand Units	Hourly Peak	
Flat Price	0.40000	$/Therm
Customer Charge	0.00	$
Minimum Charge	0.00	$
Tax Rate	0.00	%

Table 1. Annual Costs

Component	141 ST READINESS CENTER ($)
Air System Fans	9,911
Cooling	45,151
Heating	4,379
Pumps	9,873
Cooling Tower Fans	0
HVAC Sub-Total	**69,314**
Lights	27,339
Electric Equipment	17,692
Misc. Electric	0
Misc. Fuel Use	11,648
Non-HVAC Sub-Total	**56,679**
Grand Total	**125,993**

Table 2. Annual Cost per Unit Floor Area

Component	141 ST READINESS CENTER ($/ft²)
Air System Fans	0.098
Cooling	0.445
Heating	0.043
Pumps	0.097
Cooling Tower Fans	0.000
HVAC Sub-Total	**0.683**
Lights	0.269
Electric Equipment	0.174
Misc. Electric	0.000
Misc. Fuel Use	0.115
Non-HVAC Sub-Total	**0.559**
Grand Total	**1.242**
Gross Floor Area (ft²)	101486.0
Conditioned Floor Area (ft²)	89486.0

Note: Values in this table are calculated using the Gross Floor Area.

Table 3. Component Cost as a Percentage of Total Cost

Component	141 ST READINESS CENTER (%)
Air System Fans	7.9
Cooling	35.8
Heating	3.5
Pumps	7.8
Cooling Tower Fans	0.0
HVAC Sub-Total	**55.0**
Lights	21.7
Electric Equipment	14.0
Misc. Electric	0.0
Misc. Fuel Use	9.2
Non-HVAC Sub-Total	**45.0**
Grand Total	**100.0**

Table 1. Annual Costs

Component	141 ST READINESS CENTER ($)
HVAC Components	
Electric	69,314
Natural Gas	0
Fuel Oil	0
Propane	0
Remote HW	0
Remote Steam	0
Remote CW	0
HVAC Sub-Total	**69,314**
Non-HVAC Components	
Electric	45,030
Natural Gas	11,648
Fuel Oil	0
Propane	0
Remote HW	0
Remote Steam	0
Non-HVAC Sub-Total	**56,678**
Grand Total	**125,992**

Table 2. Annual Energy Consumption

Component	141 ST READINESS CENTER
HVAC Components	
Electric (kWh)	866,423
Natural Gas (Therm)	0
Fuel Oil (na)	0
Propane (na)	0
Remote HW (na)	0
Remote Steam (na)	0
Remote CW (na)	0
Non-HVAC Components	
Electric (kWh)	562,873
Natural Gas (Therm)	29,120
Fuel Oil (na)	0
Propane (na)	0
Remote HW (na)	0
Remote Steam (na)	0
Totals	
Electric (kWh)	1,429,296
Natural Gas (Therm)	29,120
Fuel Oil (na)	0
Propane (na)	0
Remote HW (na)	0
Remote Steam (na)	0
Remote CW (na)	0

Table 3. Annual Emissions

Component	141 ST READINESS CENTER
CO2 (lb)	0
SO2 (kg)	0
NOx (kg)	0

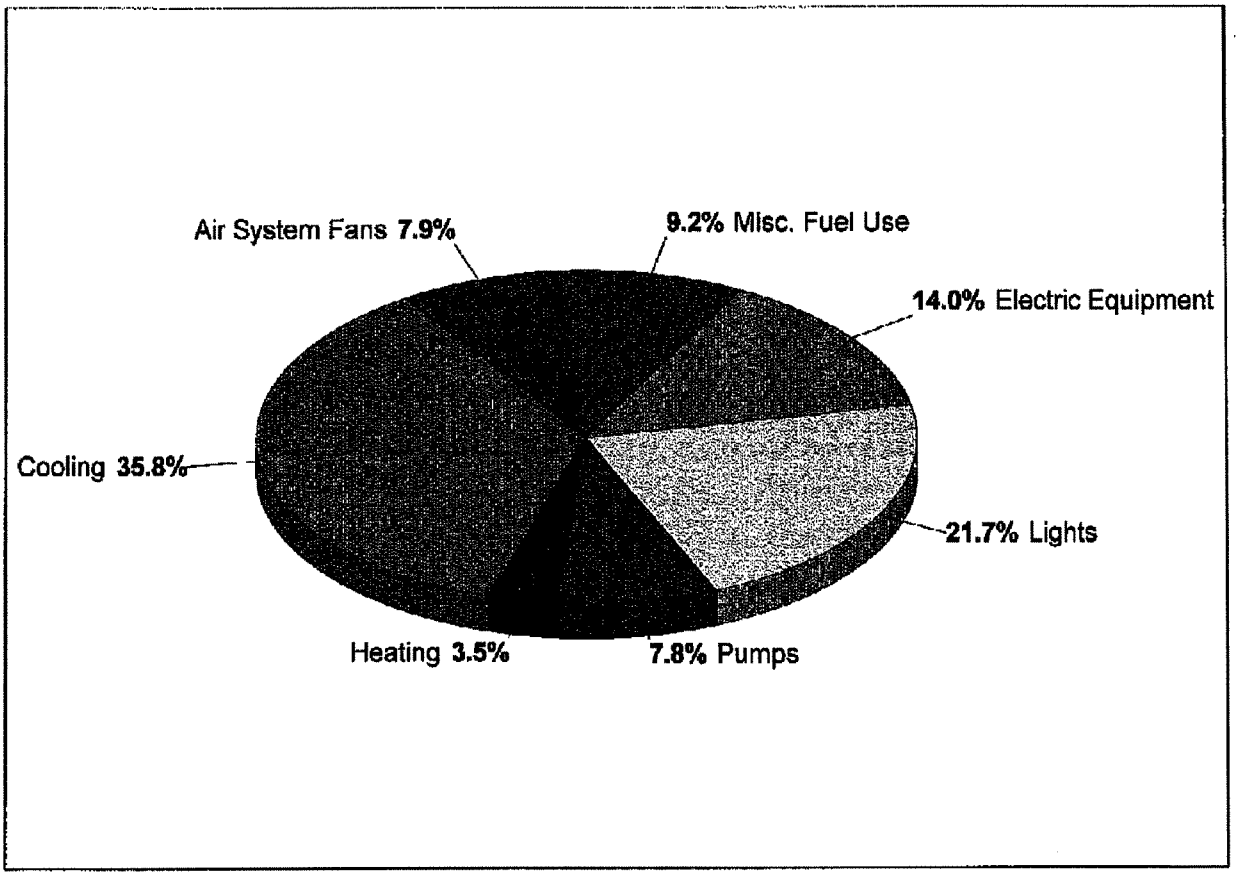
Table 4. Annual Cost per Unit Floor Area

Component	141 ST READINESS CENTER ($/ft²)
HVAC Components	
Electric	0.683
Natural Gas	0.000
Fuel Oil	0.000
Propane	0.000
Remote HW	0.000
Remote Steam	0.000
Remote CW	0.000
HVAC Sub-Total	**0.683**
Non-HVAC Components	
Electric	0.444
Natural Gas	0.115
Fuel Oil	0.000
Propane	0.000
Remote HW	0.000
Remote Steam	0.000
Non-HVAC Sub-Total	**0.559**
Grand Total	**1.242**
Gross Floor Area (ft²)	101486.0
Conditioned Floor Area (ft²)	89486.0

Note: Values in this table are calculated using the Gross Floor Area.

Table 5. Component Cost as a Percentage of Total Cost

Component	141 ST READINESS CENTER (%)
HVAC Components	
Electric	55.0
Natural Gas	0.0
Fuel Oil	0.0
Propane	0.0
Remote HW	0.0
Remote Steam	0.0
Remote CW	0.0
HVAC Sub-Total	**55.0**
Non-HVAC Components	
Electric	35.7
Natural Gas	9.2
Fuel Oil	0.0
Propane	0.0
Remote HW	0.0
Remote Steam	0.0
Non-HVAC Sub-Total	**45.0**
Grand Total	**100.0**

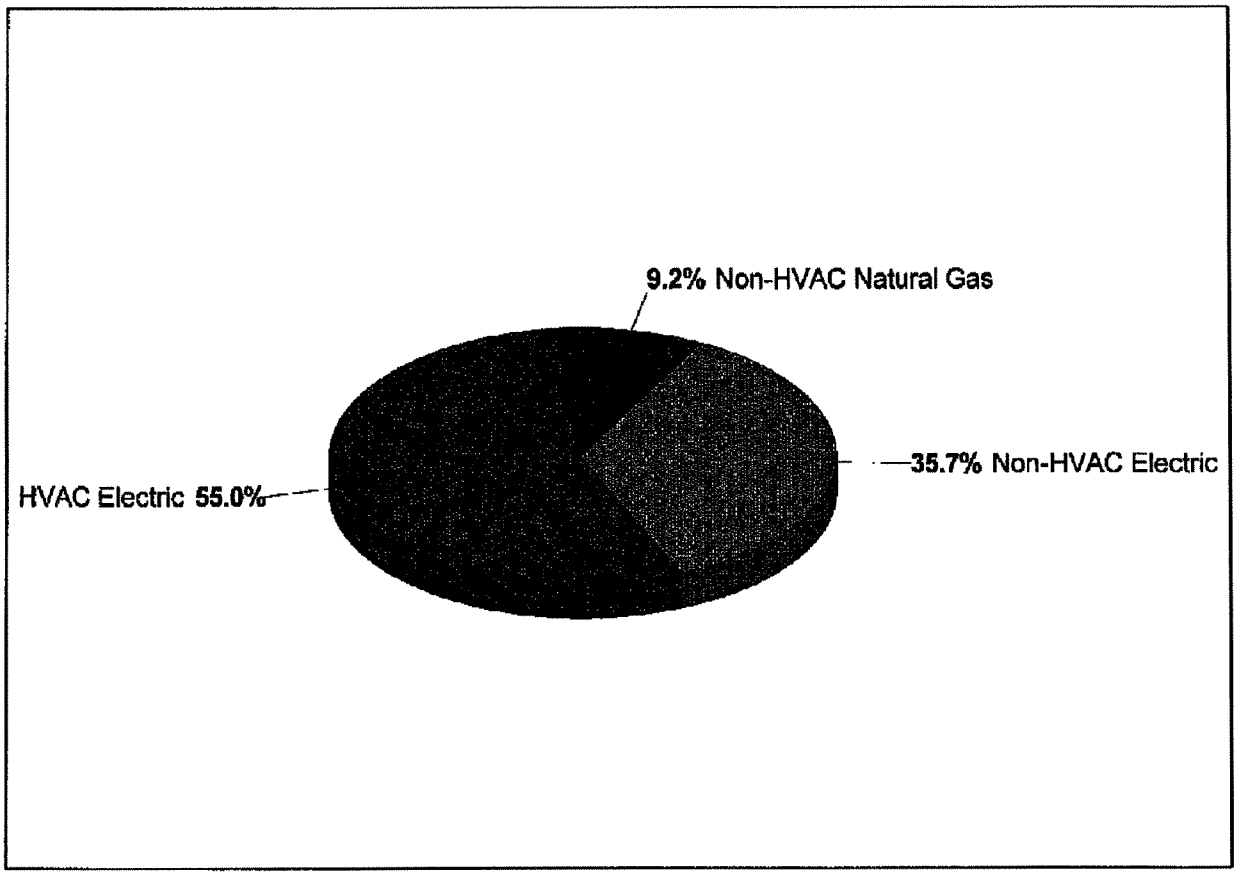


1. Annual Costs

Component	Annual Cost ($)	($/ft²)	Percent of Total (%)
Air System Fans	9,911	0.098	7.9
Cooling	45,151	0.445	35.8
Heating	4,379	0.043	3.5
Pumps	9,873	0.097	7.8
Cooling Tower Fans	0	0.000	0.0
HVAC Sub-Total	**69,314**	**0.683**	**55.0**
Lights	27,339	0.269	21.7
Electric Equipment	17,692	0.174	14.0
Misc. Electric	0	0.000	0.0
Misc. Fuel Use	11,648	0.115	9.2
Non-HVAC Sub-Total	**56,679**	**0.559**	**45.0**
Grand Total	**125,993**	**1.242**	**100.0**

Note: Cost per unit floor area is based on the gross building floor area.

Gross Floor Area ..... **101486.0** ft²
Conditioned Floor Area **89486.0** ft²



1. Annual Costs

Component	Annual Cost ($/yr)	($/ft²)	Percent of Total (%)
HVAC Components			
Electric	69,314	0.683	55.0
Natural Gas	0	0.000	0.0
Fuel Oil	0	0.000	0.0
Propane	0	0.000	0.0
Remote Hot Water	0	0.000	0.0
Remote Steam	0	0.000	0.0
Remote Chilled Water	0	0.000	0.0
HVAC Sub-Total	**69,314**	**0.683**	**55.0**
Non-HVAC Components			
Electric	45,030	0.444	35.7
Natural Gas	11,648	0.115	9.2
Fuel Oil	0	0.000	0.0
Propane	0	0.000	0.0
Remote Hot Water	0	0.000	0.0
Remote Steam	0	0.000	0.0
Non-HVAC Sub-Total	**56,678**	**0.559**	**45.0**
Grand Total	**125,992**	**1.242**	**100.0**

Note: Cost per unit floor area is based on the gross building floor area.

Gross Floor Area ..... **101486.0** ft²
Conditioned Floor Area ..... **89486.0** ft²

Energy Budget by System Component - 141 ST READINESS CENTER

Jackson Barracks
L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
04:02PM

1. Annual Coil Loads

Component	Load (kBTU)	(kBTU/ft²)
Cooling Coil Loads	4,877,027	48.056
Heating Coil Loads	186,768	1.840
Grand Total	**5,063,794**	**49.897**

2. Energy Consumption by System Component

Component	Site Energy (kBTU)	Site Energy (kBTU/ft²)	Source Energy (kBTU)	Source Energy (kBTU/ft²)
Air System Fans	422,723	4.165	1,509,724	14.876
Cooling	1,925,703	18.975	6,877,510	67.768
Heating	186,760	1.840	666,999	6.572
Pumps	421,062	4.149	1,503,795	14.818
Cooling Towers	0	0.000	0	0.000
HVAC Sub-Total	**2,956,248**	**29.130**	**10,558,027**	**104.034**
Lights	1,165,993	11.489	4,164,259	41.033
Electric Equipment	754,561	7.435	2,694,861	26.554
Misc. Electric	0	0.000	0	0.000
Misc. Fuel Use	2,912,000	28.694	2,912,000	28.694
Non-HVAC Sub-Total	**4,832,554**	**47.618**	**9,771,120**	**96.280**
Grand Total	**7,788,801**	**76.748**	**20,329,147**	**200.315**

Notes:
1. 'Cooling Coil Loads' is the sum of all air system cooling coil loads.
2. 'Heating Coil Loads' is the sum of all air system heating coil loads.
3. Site Energy is the actual energy consumed.
4. Source Energy is the site energy divided by the electric generating efficiency (28.0%).
5. Source Energy for fuels equals the site energy value.
6. Energy per unit floor area is based on the gross building floor area.
   Gross Floor Area ..... **101486.0** ft²
   Conditioned Floor Area ..... **89486.0** ft²

Energy Budget by Energy Source - 141 ST READINESS CENTER

Jackson Barracks
L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
04:02PM

1. Annual Coil Loads

Component	Load (kBTU)	(kBTU/ft²)
Cooling Coil Loads	4,877,027	48.056
Heating Coil Loads	186,768	1.840
Grand Total	**5,063,794**	**49.897**

2. Energy Consumption by Energy Source

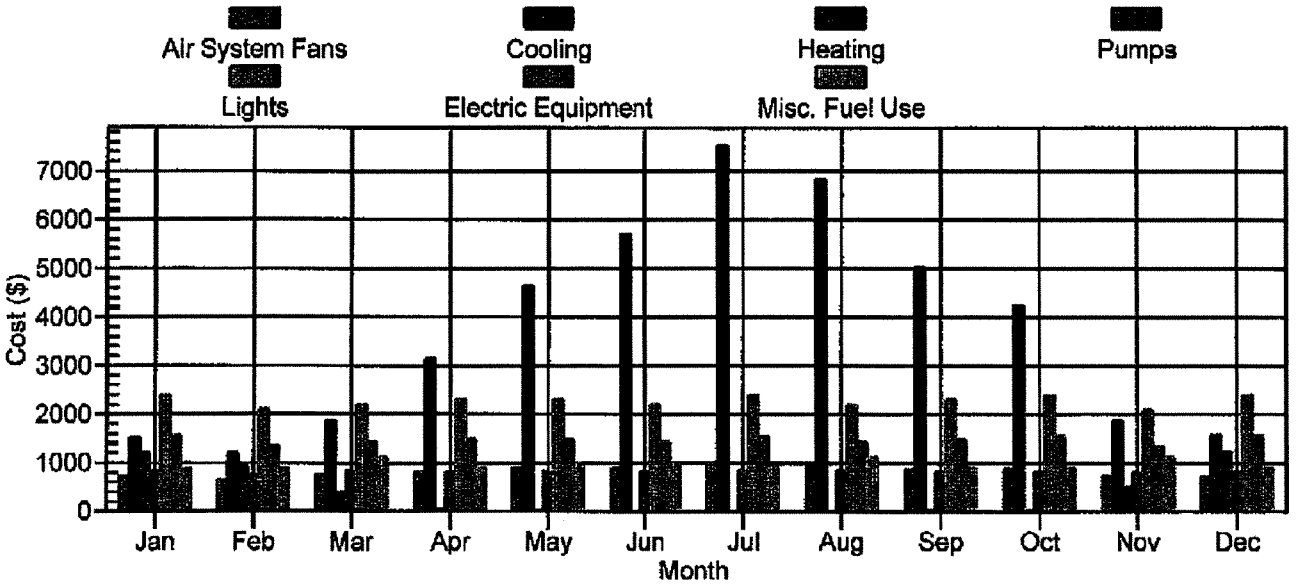
Component	Site Energy (kBTU)	Site Energy (kBTU/ft²)	Source Energy (kBTU)	Source Energy (kBTU/ft²)
HVAC Components				
Electric	2,956,234	29.130	10,557,979	104.034
Natural Gas	0	0.000	0	0.000
Fuel Oil	0	0.000	0	0.000
Propane	0	0.000	0	0.000
Remote Hot Water	0	0.000	0	0.000
Remote Steam	0	0.000	0	0.000
Remote Chilled Water	0	0.000	0	0.000
HVAC Sub-Total	**2,956,234**	**29.130**	**10,557,979**	**104.034**
Non-HVAC Components				
Electric	1,920,524	18.924	6,859,015	67.586
Natural Gas	2,912,000	28.694	2,912,000	28.694
Fuel Oil	0	0.000	0	0.000
Propane	0	0.000	0	0.000
Remote Hot Water	0	0.000	0	0.000
Remote Steam	0	0.000	0	0.000
Non-HVAC Sub-Total	**4,832,524**	**47.618**	**9,771,015**	**96.279**
Grand Total	**7,788,758**	**76.747**	**20,328,994**	**200.313**

Notes:
1. 'Cooling Coil Loads' is the sum of all air system cooling coil loads.
2. 'Heating Coil Loads' is the sum of all air system heating coil loads.
3. Site Energy is the actual energy consumed.
4. Source Energy is the site energy divided by the electric generating efficiency (28.0%).
5. Source Energy for fuels equals the site energy value.
6. Energy per unit floor area is based on the gross building floor area.
   Gross Floor Area ..... **101486.0** ft²
   Conditioned Floor Area ..... **89486.0** ft²

Monthly Component Costs - 141 ST READINESS CENTER

Jackson Barracks
L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
04:02PM



1. HVAC Component Costs

Month	Air System Fans ($)	Cooling ($)	Heating ($)	Pumps ($)	Cooling Towers ($)	HVAC Total ($)
January	740	1,528	1,209	838	0	4,315
February	651	1,205	927	752	0	3,535
March	756	1,863	396	830	0	3,845
April	816	3,142	50	809	0	4,817
May	905	4,633	13	838	0	6,389
June	899	5,708	0	821	0	7,428
July	978	7,523	0	850	0	9,351
August	961	6,827	0	849	0	8,637
September	870	5,031	21	813	0	6,735
October	883	4,250	33	837	0	6,003
November	732	1,870	505	805	0	3,912
December	721	1,572	1,225	830	0	4,348
Total	**9,911**	**45,151**	**4,379**	**9,873**	**0**	**69,314**

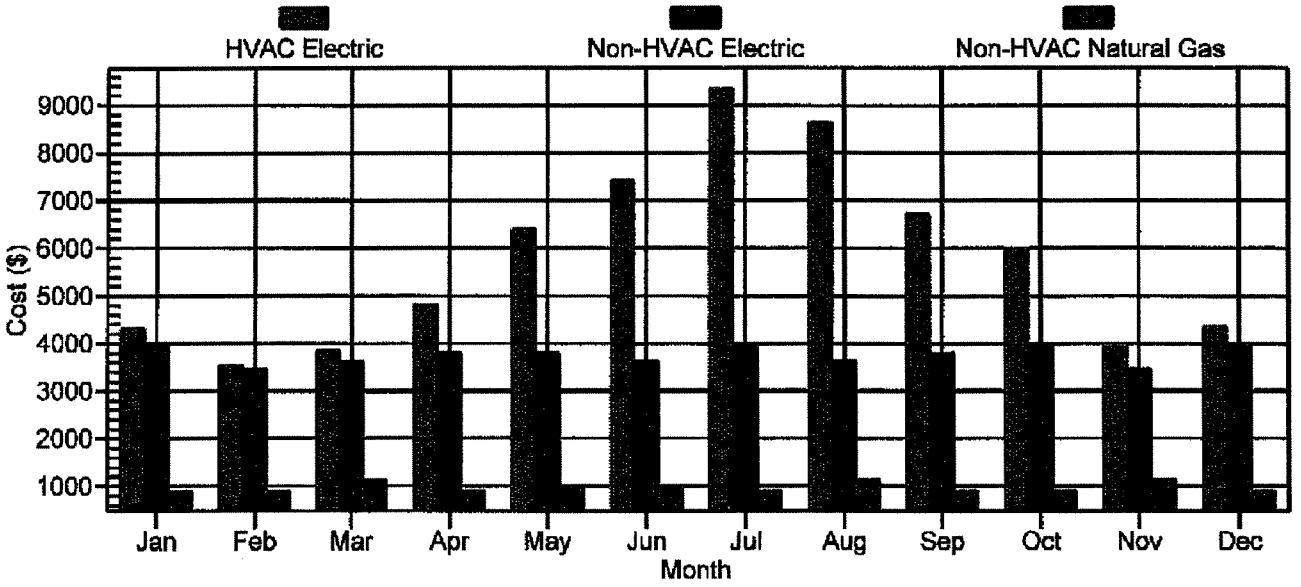
2. Non-HVAC Component Costs

Month	Lights ($)	Electric Equipment ($)	Misc. Electric ($)	Misc. Fuel Use ($)	Non-HVAC Total ($)	Grand Total ($)
January	2,409	1,559	0	896	4,864	9,179
February	2,095	1,356	0	896	4,347	7,882
March	2,200	1,423	0	1,120	4,743	8,588
April	2,304	1,491	0	896	4,692	9,509
May	2,304	1,491	0	1,008	4,804	11,193
June	2,200	1,423	0	1,008	4,631	12,059
July	2,409	1,559	0	896	4,864	14,215
August	2,200	1,423	0	1,120	4,743	13,380
September	2,304	1,491	0	896	4,692	11,427
October	2,409	1,559	0	896	4,864	10,867
November	2,095	1,356	0	1,120	4,571	8,483
December	2,409	1,559	0	896	4,864	9,212
Total	**27,339**	**17,692**	**0**	**11,648**	**56,679**	**125,993**

Monthly Energy Costs - 141 ST READINESS CENTER

Jackson Barracks
L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
04:02PM



1. HVAC Costs

Month	Electric ($)	Natural Gas ($)	Fuel Oil ($)	Propane ($)	Remote Hot Water ($)	Remote Steam ($)	Remote Chilled Water ($)
January	4,315	0	0	0	0	0	0
February	3,535	0	0	0	0	0	0
March	3,844	0	0	0	0	0	0
April	4,817	0	0	0	0	0	0
May	6,390	0	0	0	0	0	0
June	7,427	0	0	0	0	0	0
July	9,351	0	0	0	0	0	0
August	8,637	0	0	0	0	0	0
September	6,735	0	0	0	0	0	0
October	6,002	0	0	0	0	0	0
November	3,913	0	0	0	0	0	0
December	4,348	0	0	0	0	0	0
Total	**69,314**	**0**	**0**	**0**	**0**	**0**	**0**

2. Non-HVAC Costs

Month	Electric ($)	Natural Gas ($)	Fuel Oil ($)	Propane ($)	Remote Hot Water ($)	Remote Steam ($)
January	3,968	896	0	0	0	0
February	3,451	896	0	0	0	0
March	3,623	1,120	0	0	0	0
April	3,796	896	0	0	0	0
May	3,796	1,008	0	0	0	0
June	3,623	1,008	0	0	0	0
July	3,968	896	0	0	0	0
August	3,623	1,120	0	0	0	0
September	3,796	896	0	0	0	0
October	3,968	896	0	0	0	0
November	3,451	1,120	0	0	0	0
December	3,968	896	0	0	0	0
Total	**45,030**	**11,648**	**0**	**0**	**0**	**0**

Monthly Energy Use by Component - 141 ST READINESS CENTER

Jackson Barracks
L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
04:02PM

1. Monthly Energy Use by System Component

Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Air System Fans (kWh)	9254	8137	9445	10195	11313	11232	12230	12015	10877	11034	9145	9017
Cooling												
Electric (kWh)	19094	15066	23283	39273	57918	71351	94038	85340	62882	53120	23379	19646
Natural Gas (Therm)	0	0	0	0	0	0	0	0	0	0	0	0
Fuel Oil (na)	0	0	0	0	0	0	0	0	0	0	0	0
Propane (na)	0	0	0	0	0	0	0	0	0	0	0	0
Remote HW (na)	0	0	0	0	0	0	0	0	0	0	0	0
Remote Steam (na)	0	0	0	0	0	0	0	0	0	0	0	0
Remote CW (na)	0	0	0	0	0	0	0	0	0	0	0	0
Heating												
Electric (kWh)	15108	11584	4948	623	162	0	0	0	265	415	6317	15315
Natural Gas (Therm)	0	0	0	0	0	0	0	0	0	0	0	0
Fuel Oil (na)	0	0	0	0	0	0	0	0	0	0	0	0
Propane (na)	0	0	0	0	0	0	0	0	0	0	0	0
Remote HW (na)	0	0	0	0	0	0	0	0	0	0	0	0
Remote Steam (na)	0	0	0	0	0	0	0	0	0	0	0	0
Pumps (kWh)	10479	9397	10376	10118	10479	10259	10622	10613	10161	10459	10067	10376
Clg. Tower Fans (kWh)	0	0	0	0	0	0	0	0	0	0	0	0
Lighting (kWh)	30114	26186	27496	28805	28805	27496	30114	27496	28805	30114	26186	30114
Electric Eqpt. (kWh)	19488	16946	17794	18641	18641	17794	19488	17794	18641	19488	16946	19488
Misc. Electric (kWh)	0	0	0	0	0	0	0	0	0	0	0	0
Misc. Fuel												
Natural Gas (Therm)	2240	2240	2800	2240	2520	2520	2240	2800	2240	2240	2800	2240
Propane (na)	0	0	0	0	0	0	0	0	0	0	0	0
Remote HW (na)	0	0	0	0	0	0	0	0	0	0	0	0
Remote Steam (na)	0	0	0	0	0	0	0	0	0	0	0	0

Monthly Energy Use by Energy Type - 141 ST READINESS CENTER

Jackson Barracks
L. T. Vivien, Jr. & Associates, Inc.

04/07/2006
04:02PM

1. HVAC Energy Use

Month	Electric (kWh)	Natural Gas (Therm)	Fuel Oil (na)	Propane (na)	Remote HW (na)	Remote Steam (na)	Remote CW (na)
Jan	53,936	0	0	0	0	0	0
Feb	44,184	0	0	0	0	0	0
Mar	48,052	0	0	0	0	0	0
Apr	60,210	0	0	0	0	0	0
May	79,873	0	0	0	0	0	0
Jun	92,839	0	0	0	0	0	0
Jul	116,889	0	0	0	0	0	0
Aug	107,967	0	0	0	0	0	0
Sep	84,183	0	0	0	0	0	0
Oct	75,030	0	0	0	0	0	0
Nov	48,908	0	0	0	0	0	0
Dec	54,354	0	0	0	0	0	0
Totals	866,423	0	0	0	0	0	0

2. Non-HVAC Energy Use

Month	Electric (kWh)	Natural Gas (Therm)	Fuel Oil (na)	Propane (na)	Remote HW (na)	Remote Steam (na)
Jan	49,602	2,240	0	0	0	0
Feb	43,132	2,240	0	0	0	0
Mar	45,289	2,800	0	0	0	0
Apr	47,445	2,240	0	0	0	0
May	47,445	2,520	0	0	0	0
Jun	45,289	2,520	0	0	0	0
Jul	49,602	2,240	0	0	0	0
Aug	45,289	2,800	0	0	0	0
Sep	47,445	2,240	0	0	0	0
Oct	49,602	2,240	0	0	0	0
Nov	43,132	2,800	0	0	0	0
Dec	49,602	2,240	0	0	0	0
Totals	562,873	29,120	0	0	0	0

Jackson Barracks 141st Field Artillery Battalion Readiness Center

Energy Analysis – Building meeting SPIRIT energy savings

May 3, 2006

35% Design Submittal

Lucien T. Vivien, Jr. & Associates, Inc.

Design Parameters:

City Name	New Orleans IAP	
Location	Louisiana	
Latitude	30.0	Deg.
Longitude	90.3	Deg.
Elevation	30.0	ft
Summer Design Dry-Bulb	95.0	°F
Summer Coincident Wet-Bulb	80.0	°F
Summer Daily Range	15.5	°F
Winter Design Dry-Bulb	30.0	°F
Winter Design Wet-Bulb	25.3	°F
Atmospheric Clearness Number	0.90	
Average Ground Reflectance	0.20	
Soil Conductivity	0.800	BTU/(hr-ft-°F)
Local Time Zone (GMT +/- N hours)	6.0	hours
Consider Daylight Savings Time	No	
Simulation Weather Data	New Orleans (TMY)	
Current Data is	User Modified	
Design Cooling Months	January to December	

Design Day Maximum Solar Heat Gains

(The MSHG values are expressed in BTU/(hr-ft^2))

Month	N	NNE	NE	ENE	E	ESE	SE	SSE	S
January	21.9	21.9	24.8	102.0	162.3	206.8	227.3	224.9	217.6
February	25.3	25.3	60.7	136.4	191.4	216.2	223.3	205.7	192.3
March	28.8	32.9	106.3	161.5	205.2	217.5	199.9	168.9	149.1
April	32.1	69.8	138.8	183.1	199.5	196.0	163.8	118.4	92.6
May	35.4	98.1	156.9	190.8	196.0	176.1	135.1	81.4	57.8
June	45.7	109.5	162.5	190.7	190.3	167.0	121.4	66.8	47.8
July	36.7	100.3	155.0	185.8	189.9	173.1	130.5	78.0	56.6
August	33.6	71.5	134.9	175.4	194.1	189.5	156.9	113.5	89.8
September	29.8	29.8	100.8	156.1	192.5	207.8	191.5	163.1	145.4
October	26.0	26.0	63.8	128.8	181.3	213.1	212.5	197.7	187.1
November	22.2	22.2	30.2	94.1	162.5	203.5	223.5	220.6	214.5
December	20.3	20.3	20.3	85.6	151.0	197.2	225.2	228.2	222.4
Month	**SSW**	**SW**	**WSW**	**W**	**WNW**	**NW**	**NNW**	**HOR**	**Mult**
January	223.8	227.0	207.4	165.2	94.9	30.5	21.9	166.9	1.00
February	204.1	220.4	220.9	187.1	135.3	65.5	25.3	202.3	1.00
March	168.7	200.3	216.8	200.4	166.8	106.4	29.3	231.5	1.00
April	118.4	163.8	196.0	199.5	183.1	138.8	69.8	245.0	1.00
May	81.1	134.8	176.7	194.8	190.4	157.2	99.2	249.2	1.00
June	67.2	121.7	166.2	191.5	191.1	162.2	108.5	248.3	1.00
July	79.0	131.5	171.2	192.4	187.5	154.6	97.4	246.1	1.00
August	114.3	157.9	188.8	192.5	177.1	135.1	69.7	240.3	1.00
September	164.0	192.6	207.6	195.4	153.7	99.8	31.8	223.7	1.00
October	199.7	216.0	207.8	183.9	131.7	57.6	26.0	198.4	1.00
November	221.5	223.6	203.5	159.2	100.4	25.1	22.2	165.8	1.00
December	228.2	225.2	197.1	151.1	85.6	20.3	20.3	149.8	1.00

Mult. = User-defined solar multiplier factor.

Cooling Design Temperature Profiles

Jackson Barracks Spirit
L. T. Vivien, Jr. & Associates, Inc.

04/12/2008
01:32PM

Location: New Orleans IAP, Louisiana

(Dry and Wet Bulb temperatures are expressed in °F)

Hr	January		February		March		April		May		June	
	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB
0000	64.3	63.8	66.3	65.8	71.3	70.4	74.3	72.6	78.3	74.7	81.3	76.8
0100	63.5	63.0	65.5	65.0	70.5	70.0	73.5	72.3	77.5	74.5	80.5	76.6
0200	62.7	62.2	64.7	64.2	69.7	69.2	72.7	72.1	76.7	74.3	79.7	76.4
0300	62.1	61.6	64.1	63.6	69.1	68.6	72.1	71.6	76.1	74.1	79.1	76.3
0400	61.7	61.2	63.7	63.2	68.7	68.2	71.7	71.2	75.7	74.0	78.7	76.2
0500	61.5	61.0	63.5	63.0	68.5	68.0	71.5	71.0	75.5	74.0	78.5	76.1
0600	61.8	61.3	63.8	63.3	68.8	68.3	71.8	71.3	75.8	74.0	78.8	76.2
0700	62.6	62.1	64.6	64.1	69.6	69.1	72.6	72.1	76.6	74.2	79.6	76.4
0800	64.0	63.5	66.0	65.5	71.0	70.3	74.0	72.5	78.0	74.6	81.0	76.8
0900	66.0	64.5	68.0	66.6	73.0	70.9	76.0	73.0	80.0	75.2	83.0	77.3
1000	68.3	65.2	70.3	67.3	75.3	71.6	78.3	73.7	82.3	75.8	85.3	77.9
1100	71.0	66.1	73.0	68.2	78.0	72.3	81.0	74.4	85.0	76.5	88.0	78.5
1200	73.4	66.9	75.4	68.9	80.4	73.0	83.4	75.1	87.4	77.1	90.4	79.1
1300	75.3	67.5	77.3	69.5	82.3	73.5	85.3	75.6	89.3	77.6	92.3	79.6
1400	76.5	67.9	78.5	69.9	83.5	73.9	86.5	75.9	90.5	77.9	93.5	79.9
1500	77.0	68.0	79.0	70.0	84.0	74.0	87.0	76.0	91.0	78.0	94.0	80.0
1600	76.5	67.9	78.5	69.9	83.5	73.9	86.5	75.9	90.5	77.9	93.5	79.9
1700	75.5	67.5	77.5	69.5	82.5	73.6	85.5	75.6	89.5	77.6	92.5	79.6
1800	73.7	67.0	75.7	69.0	80.7	73.1	83.7	75.1	87.7	77.2	90.7	79.2
1900	71.7	66.3	73.7	68.4	78.7	72.5	81.7	74.6	85.7	76.7	88.7	78.7
2000	69.7	65.7	71.7	67.8	76.7	72.0	79.7	74.1	83.7	76.1	86.7	78.2
2100	68.0	65.1	70.0	67.2	75.0	71.5	78.0	73.6	82.0	75.7	85.0	77.8
2200	66.5	64.6	68.5	66.8	73.5	71.0	76.5	73.2	80.5	75.3	83.5	77.4
2300	65.2	64.2	67.2	66.4	72.2	70.7	75.2	72.8	79.2	75.0	82.2	77.1

Hr	July		August		September		October		November		December	
	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB	DB	WB
0000	82.3	76.8	82.3	76.8	80.3	75.8	76.3	73.6	70.3	69.8	65.3	64.8
0100	81.5	76.6	81.5	76.6	79.5	75.6	75.5	73.4	69.5	69.0	64.5	64.0
0200	80.7	76.5	80.7	76.5	78.7	75.4	74.7	73.2	68.7	68.2	63.7	63.2
0300	80.1	76.3	80.1	76.3	78.1	75.2	74.1	73.0	68.1	67.6	63.1	62.6
0400	79.7	76.2	79.7	76.2	77.7	75.1	73.7	72.9	67.7	67.2	62.7	62.2
0500	79.5	76.1	79.5	76.1	77.5	75.0	73.5	72.9	67.5	67.0	62.5	62.0
0600	79.8	76.2	79.8	76.2	77.8	75.1	73.8	72.9	67.8	67.3	62.8	62.3
0700	80.6	76.4	80.6	76.4	78.6	75.3	74.6	73.2	68.6	68.1	63.6	63.1
0800	82.0	76.8	82.0	76.8	80.0	75.7	76.0	73.5	70.0	69.5	65.0	64.5
0900	84.0	77.3	84.0	77.3	82.0	76.2	78.0	74.1	72.0	70.9	67.0	66.5
1000	86.3	77.9	86.3	77.9	84.3	76.8	80.3	74.7	74.3	71.6	69.3	67.3
1100	89.0	78.5	89.0	78.5	87.0	77.5	83.0	75.4	77.0	72.3	72.0	68.2
1200	91.4	79.1	91.4	79.1	89.4	78.1	85.4	76.1	79.4	73.0	74.4	68.9
1300	93.3	79.6	93.3	79.6	91.3	78.6	87.3	76.6	81.3	73.5	76.3	69.5
1400	94.5	79.9	94.5	79.9	92.5	78.9	88.5	76.9	82.5	73.9	77.5	69.9
1500	95.0	80.0	95.0	80.0	93.0	79.0	89.0	77.0	83.0	74.0	78.0	70.0
1600	94.5	79.9	94.5	79.9	92.5	78.9	88.5	76.9	82.5	73.9	77.5	69.9
1700	93.5	79.6	93.5	79.6	91.5	78.6	87.5	76.6	81.5	73.6	76.5	69.6
1800	91.7	79.2	91.7	79.2	89.7	78.2	85.7	76.2	79.7	73.1	74.7	69.0
1900	89.7	78.7	89.7	78.7	87.7	77.7	83.7	75.6	77.7	72.5	72.7	68.4
2000	87.7	78.2	87.7	78.2	85.7	77.2	81.7	75.1	75.7	72.0	70.7	67.8
2100	86.0	77.8	86.0	77.8	84.0	76.7	80.0	74.6	74.0	71.5	69.0	67.3
2200	84.5	77.4	84.5	77.4	82.5	76.3	78.5	74.2	72.5	71.0	67.5	66.8
2300	83.2	77.1	83.2	77.1	81.2	76.0	77.2	73.9	71.2	70.7	66.2	66.7

DRILL (Fractional)

Hourly Profiles:

1:Profile One

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Value	0	0	0	0	0	0	50	100	100	100	100	100	100	100	100	100	100	100	50	0	0	0	0	0

2:Profile Two

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Assignments:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Design	1	1	1	1	1	1	1	1	1	1	1	1
Monday	2	2	2	2	2	2	2	2	2	2	2	2
Tuesday	2	2	2	2	2	2	2	2	2	2	2	2
Wednesday	2	2	2	2	2	2	2	2	2	2	2	2
Thursday	2	2	2	2	2	2	2	2	2	2	2	2
Friday	2	2	2	2	2	2	2	2	2	2	2	2
Saturday	1	1	1	1	1	1	1	1	1	1	1	1
Sunday	1	1	1	1	1	1	1	1	1	1	1	1
Holiday	2	2	2	2	2	2	2	2	2	2	2	2

Sample Schedule (Fractional)

Hourly Profiles:

1:Profile One

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Value	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	21	0	0	0	0	0

2:Profile Two

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Value	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Assignments:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Design	1	1	1	1	1	1	1	1	1	1	1	1
Monday	1	1	1	1	1	1	1	1	1	1	1	1
Tuesday	1	1	1	1	1	1	1	1	1	1	1	1
Wednesday	1	1	1	1	1	1	1	1	1	1	1	1
Thursday	1	1	1	1	1	1	1	1	1	1	1	1
Friday	1	1	1	1	1	1	1	1	1	1	1	1
Saturday	2	2	2	2	2	2	2	2	2	2	2	2
Sunday	2	2	2	2	2	2	2	2	2	2	2	2
Holiday	2	2	2	2	2	2	2	2	2	2	2	2

thermostat (Fan / Thermostat)

Hourly Profiles:

1:Profile One

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Value	U	U	U	U	U	U	U	O	O	O	O	O	O	O	O	O	O	O	U	U	U	U	U	U

O = Occupied; U = Unoccupied

Assignments:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Design	1	1	1	1	1	1	1	1	1	1	1	1
Monday	1	1	1	1	1	1	1	1	1	1	1	1
Tuesday	1	1	1	1	1	1	1	1	1	1	1	1
Wednesday	1	1	1	1	1	1	1	1	1	1	1	1
Thursday	1	1	1	1	1	1	1	1	1	1	1	1
Friday	1	1	1	1	1	1	1	1	1	1	1	1
Saturday	1	1	1	1	1	1	1	1	1	1	1	1
Sunday	1	1	1	1	1	1	1	1	1	1	1	1
Holiday	1	1	1	1	1	1	1	1	1	1	1	1

Face Brick + R-11 Batt

Wall Details

Outside Surface Color ..... **Dark**
Absorptivity **0.900**
Overall U-Value ..... **0.064** BTU/(hr-ft²-°F)

Wall Layers Details (Inside to Outside)

Layers	Thickness in	Density lb/ft³	Specific Ht. BTU / (lb - °F)	R-Value (hr-ft²-°F)/BTU	Weight lb/ft²
Inside surface resistance	0.000	0.0	0.00	0.68500	0.0
5/8-in gypsum board	0.625	50.0	0.26	0.66004	2.6
R-13 batt insulation	4.000	0.5	0.20	12.82051	0.2
Air space	0.000	0.0	0.00	0.91000	0.0
4-in face brick	4.000	125.0	0.22	0.43290	41.7
Outside surface resistance	0.000	0.0	0.00	0.33300	0.0
Totals	**8.625**	-		**15.74145**	**44.4**

Built-up Roof + R-14 Board + 4" LW Concrete

Roof Details

Outside Surface Color	Dark	
Absorptivity	0.900	
Overall U-Value	0.050	BTU/(hr-ft²-°F)

Roof Layers Details (Inside to Outside)

Layers	Thickness in	Density lb/ft³	Specific Ht. BTU / (lb - °F)	R-Value (hr-ft²-°F)/BTU	Weight lb/ft²
Inside surface resistance	0.000	0.0	0.00	0.68500	0.0
1/2-in gypsum board	0.500	50.0	0.26	0.44803	2.1
Air space	0.000	0.0	0.00	0.91000	0.0
4-in LW concrete	4.000	40.0	0.20	3.33333	13.3
R-14 board insulation	2.000	2.0	0.22	13.88889	0.3
Built-up roofing	0.375	70.0	0.35	0.33245	2.2
Outside surface resistance	0.000	0.0	0.00	0.33300	0.0
Totals	**6.875**	-		**19.93070**	**17.9**

Window Constructions

Sample Window Assembly

Window Details:

Detailed Input	No	
Height	1.00	ft
Width	1.00	ft
Overall U-Value	0.500	BTU/(hr-ft²-°F)
Overall Shade Coefficient	0.250	

Chiller Input Data

Sample Chiller

General Details

Chiller Name ..... Sample Chiller
Chiller Type ..... Water-Cooled Centrifugal
Data Source ..... Template Data

Notes: Performance data was generated using the Chiller Template option.

Design Inputs

Full Load LCHWT	42.0	°F
Full Load ECWT	85.0	°F
Full Load Capacity	300.0	Tons
Full Load Power	0.688	kW/Ton
Minimum ECWT Setpoint	60.0	°F
Minimum Load	20.0	%
Cooler Flow Rate	720.0	gpm
Cooler Pressure Drop	0.0	ft wg
Condenser Flow Rate	900.0	gpm
Condenser Pressure Drop	0.0	ft wg

Chiller Performance (kW/Ton)

ECWT°F	Max Cap	100%	75%	50%	25%
90.0	0.728	0.728	0.579	0.520	0.642
85.0	0.688	0.688	0.547	0.491	0.607
79.0	0.640	0.640	0.509	0.457	0.565
72.0	0.585	0.585	0.465	0.418	0.516
66.0	0.537	0.537	0.427	0.384	0.474
60.0	0.490	0.490	0.389	0.350	0.432

Performance LCHWT Factor a	-0.0088	1/F
Performance LCHWT Factor b	0.0000	1/F²

Chiller Capacity (Tons)

ECWT°F	Max Cap	100%	75%	50%	25%
90.0	300.0	300.0	225.0	150.0	75.0
85.0	300.0	300.0	225.0	150.0	75.0
79.0	300.0	300.0	225.0	150.0	75.0
72.0	300.0	300.0	225.0	150.0	75.0
66.0	300.0	300.0	225.0	150.0	75.0
60.0	300.0	300.0	225.0	150.0	75.0

Capacity LCHWT Factor a	0.0000	1/F
Capacity LCHWT Factor b	0.0000	1/F²

Cooling Tower Input Data

Sample Cooling Tower

Modeling Method

Modeling Method	**Cooling Tower Model**

General Details

Condenser Water Flow Rate	**900.0**	gpm
Condenser Pump Head	**40.0**	ft wg
Condenser Pump Mech. Efficiency	**80.0**	%
Condenser Pump Elec. Efficiency	**94.0**	%

Detailed Cooling Tower Model

Design Wet Bulb	**80.0**	°F
Range At Design	**10.0**	°F
Design Approach	**7.0**	°F
Full Load Fan kW	**0.100**	kW/Ton
Cooling Tower Control	**Variable Speed Fan**	
Fan Electrical Efficiency	**94.0**	%

Electric Rate Input Data

Electric Rate

General Details

Rate Name	Electric Rate	
Currency	$	
Rate Type	Simple	
Energy Units	kWh	
Conversion	1.00000	kWh/kWh
Demand Units	kW	
Flat Price	0.08000	$/kWh
Customer Charge	0.00	$
Minimum Charge	0.00	$
Tax Rate	0.00	%

Fuel Rate Input Data

Fuel Rate

General Details

Rate Name	Fuel Rate	
Currency	$	
Rate Type	Simple	
Energy Units	Therm	
Conversion	100.00000	kBTU/Therm
Demand Units	Hourly Peak	
Flat Price	0.40000	$/Therm
Customer Charge	0.00	$
Minimum Charge	0.00	$
Tax Rate	0.00	%

Space Input Data

AHU 1-1

1. General Details:

Floor Area	11255.0	ft²
Avg. Ceiling Height	10.0	ft
Building Weight	70.0	lb/ft²

1.1. OA Ventilation Requirements:

Space Usage	RETAIL: Storage Rooms	
OA Requirement 1	0.0	CFM/person
OA Requirement 2	0.15	CFM/ft²

2. Internals:

2.1. Overhead Lighting:

Fixture Type	Recessed (Unvented)	
Wattage	0.80	W/ft²
Ballast Multiplier	1.08	
Schedule	Sample Schedule	

2.2. Task Lighting:

Wattage	0.00	W/ft²
Schedule	None	

2.3. Electrical Equipment:

Wattage	2000.0	Watts
Schedule	Sample Schedule	

2.4. People:

Occupancy	10	People
Activity Level	Office Work	
Sensible	245.0	BTU/hr/person
Latent	205.0	BTU/hr/person
Schedule	Sample Schedule	

2.5. Miscellaneous Loads:

Sensible	0	BTU/hr
Schedule	None	
Latent	0	BTU/hr
Schedule	None	

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	2029.0	400	0	0
W	2238.0	0	0	0
S	1841.0	160	0	0

3.1. Construction Types for Exposure N

Wall Type	Face Brick + R-11 Batt
1st Window Type	Sample Window Assembly

3.2. Construction Types for Exposure W

Wall Type	Face Brick + R-11 Batt

3.3. Construction Types for Exposure S

Wall Type	Face Brick + R-11 Batt
1st Window Type	Sample Window Assembly

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	0.00	CFM
Design Heating	0.00	CFM
Energy Analysis	0.00	CFM

Infiltration occurs only when the fan is off.

6. Floors:

Type	Slab Floor On Grade	
Floor Area	11255.0	ft²
Total Floor U-Value	0.050	BTU/(hr-ft²-°F)
Exposed Perimeter	0.0	ft
Edge Insulation R-Value	0.00	(hr-ft²-°F)/BTU

7. Partitions:

(No partition data).

AHU 1-2

1. General Details:
Floor Area ..... 5824.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... EDUCATION: Classroom
OA Requirement 1 ..... 15.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.20 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 2000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 300 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	2423.0	480	0	0
E	939.0	320	0	0

3.1. Construction Types for Exposure N
Wall Type ..... Face Brick + R-11 Batt
1st Window Type ..... Sample Window Assembly

3.2. Construction Types for Exposure E
Wall Type ..... Face Brick + R-11 Batt
1st Window Type ..... Sample Window Assembly

4. Roofs, Skylights:
(No Roof or Skylight data).

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Slab Floor On Grade
Floor Area ..... 5824.0 ft²
Total Floor U-Value ..... 0.060 BTU/(hr-ft²-°F)
Exposed Perimeter ..... 0.0 ft
Edge Insulation R-Value ..... 0.00 (hr-ft²-°F)/BTU

7. Partitions:
(No partition data).

AHU 1-3

1. General Details:

Floor Area	7851.0	ft²
Avg. Ceiling Height	10.0	ft
Building Weight	70.0	lb/ft²

1.1. OA Ventilation Requirements:

Space Usage	OFFICE: Office Space	
OA Requirement 1	20.0	CFM/person
OA Requirement 2	0.00	CFM/ft²

2. Internals:

2.1. Overhead Lighting:

Fixture Type	Recessed (Unvented)	
Wattage	1.10	W/ft²
Ballast Multiplier	1.08	
Schedule	Sample Schedule	

2.2. Task Lighting:

Wattage	0.00	W/ft²
Schedule	None	

2.3. Electrical Equipment:

Wattage	5000.0	Watts
Schedule	Sample Schedule	

2.4. People:

Occupancy	85	People
Activity Level	Office Work	
Sensible	245.0	BTU/hr/person
Latent	205.0	BTU/hr/person
Schedule	Sample Schedule	

2.5. Miscellaneous Loads:

Sensible	0	BTU/hr
Schedule	None	
Latent	0	BTU/hr
Schedule	None	

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	1100.0	0	0	0
S	1650.0	320	0	0

3.1. Construction Types for Exposure E

Wall Type ... Face Brick + R-11 Batt

3.2. Construction Types for Exposure S

Wall Type	Face Brick + R-11 Batt
1st Window Type	Sample Window Assembly

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	0.00	CFM
Design Heating	0.00	CFM
Energy Analysis	0.00	CFM

Infiltration occurs only when the fan is off.

6. Floors:

Type	Slab Floor On Grade	
Floor Area	7851.0	ft²
Total Floor U-Value	0.050	BTU/(hr-ft²-°F)
Exposed Perimeter	0.0	ft
Edge Insulation R-Value	0.00	(hr-ft²-°F)/BTU

7. Partitions:

(No partition data).

AHU 1-4

1. General Details:

Floor Area	1733.0	ft²
Avg. Ceiling Height	10.0	ft
Building Weight	70.0	lb/ft²

1.1. OA Ventilation Requirements:

Space Usage	OFFICE: Reception Areas	
OA Requirement 1	15.0	CFM/person
OA Requirement 2	0.00	CFM/ft²

2. Internals:

2.1. Overhead Lighting:

Fixture Type	Recessed (Unvented)	
Wattage	1.20	W/ft²
Ballast Multiplier	1.08	
Schedule	Sample Schedule	

2.2. Task Lighting:

Wattage	0.00	W/ft²
Schedule	None	

2.3. Electrical Equipment:

Wattage	2000.0	Watts
Schedule	Sample Schedule	

2.4. People:

Occupancy	10	People
Activity Level	Office Work	
Sensible	245.0	BTU/hr/person
Latent	205.0	BTU/hr/person
Schedule	Sample Schedule	

2.5. Miscellaneous Loads:

Sensible	0	BTU/hr
Schedule	None	
Latent	0	BTU/hr
Schedule	None	

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	793.0	80	0	0

3.1. Construction Types for Exposure N

Wall Type	Face Brick + R-11 Batt
1st Window Type	Sample Window Assembly

4. Roofs, Skylights:

(No Roof or Skylight data).

5. Infiltration:

Design Cooling	0.00	CFM
Design Heating	0.00	CFM
Energy Analysis	0.00	CFM

Infiltration occurs only when the fan is off.

6. Floors:

Type	Slab Floor On Grade	
Floor Area	1733.0	ft²
Total Floor U-Value	0.050	BTU/(hr-ft²-°F)
Exposed Perimeter	0.0	ft
Edge Insulation R-Value	0.00	(hr-ft²-°F)/BTU

7. Partitions:

(No partition data).

AHU 1-5

1. General Details:
Floor Area ..... 7514.0 ft²
Avg. Ceiling Height ..... 20.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... OFFICE: Reception Areas
OA Requirement 1 ..... 15.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.20 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 2000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 600 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... DRILL

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	2608.0	0	0	0
W	1914.0	100	0	0
E	1914.0	100	0	0

3.1. Construction Types for Exposure S
Wall Type ..... Face Brick + R-11 Batt

3.2. Construction Types for Exposure W
Wall Type ..... Face Brick + R-11 Batt
1st Window Type ..... Sample Window Assembly

3.3. Construction Types for Exposure E
Wall Type ..... Face Brick + R-11 Batt
1st Window Type ..... Sample Window Assembly

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	7514.0	0	0

4.1. Construction Types for Exposure H
Roof Type ... Built-up Roof + R-14 Board + 4" LW Concrete

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Slab Floor On Grade
Floor Area ..... 7514.0 ft²
Total Floor U-Value ..... 0.050 BTU/(hr-ft²-°F)
Exposed Perimeter ..... 0.0 ft
Edge Insulation R-Value ..... 0.00 (hr-ft²-°F)/BTU

7. Partitions:
(No partition data).

AHU 2-1

1. General Details:

Floor Area	1200.0	ft²
Avg. Ceiling Height	10.0	ft
Building Weight	70.0	lb/ft²

1.1. OA Ventilation Requirements:

Space Usage	WORKROOMS: Bank Vaults	
OA Requirement 1	15.0	CFM/person
OA Requirement 2	0.00	CFM/ft²

2. Internals:

2.1. Overhead Lighting:

Fixture Type	Recessed (Unvented)	
Wattage	1.20	W/ft²
Ballast Multiplier	1.08	
Schedule	Sample Schedule	

2.2. Task Lighting:

Wattage	0.00	W/ft²
Schedule	None	

2.3. Electrical Equipment:

Wattage	0.0	Watts
Schedule	Sample Schedule	

2.4. People:

Occupancy	4	People
Activity Level	Office Work	
Sensible	245.0	BTU/hr/person
Latent	205.0	BTU/hr/person
Schedule	Sample Schedule	

2.5. Miscellaneous Loads:

Sensible	0	BTU/hr
Schedule	None	
Latent	0	BTU/hr
Schedule	None	

3. Walls, Windows, Doors:
(No Wall, Window, Door data).

4. Roofs, Skylights:
(No Roof or Skylight data).

5. Infiltration:

Design Cooling	0.00	CFM
Design Heating	0.00	CFM
Energy Analysis	0.00	CFM

Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 2-2

1. General Details:
Floor Area ..... 6228.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage . PUBLIC: Locker and Dressing Rooms
OA Requirement 1 ..... 0.0 CFM/person
OA Requirement 2 ..... 0.50 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 0.90 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 1000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 192 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... DRILL

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
S	1494.0	307	0	0
W	816.0	0	0	0

3.1. Construction Types for Exposure S
Wall Type ..... Face Brick + R-11 Batt
1st Window Type ..... Sample Window Assembly

3.2. Construction Types for Exposure W
Wall Type ..... Face Brick + R-11 Batt

4. Roofs, Skylights:
(No Roof or Skylight data).

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 2-3

1. General Details:
Floor Area ..... 6000.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... EDUCATION: Classroom
OA Requirement 1 ..... 15.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.20 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 15000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 44 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	1996.0	360	0	0
E	776.0	0	0	0

3.1. Construction Types for Exposure N
Wall Type ..... Face Brick + R-11 Batt
1st Window Type ..... Sample Window Assembly

3.2. Construction Types for Exposure E
Wall Type ..... Face Brick + R-11 Batt

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	700.0	0	0

4.1. Construction Types for Exposure H
Roof Type ... Built-up Roof + R-14 Board + 4" LW Concrete

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 2-4

1. General Details:
Floor Area ..... 7984.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... EDUCATION: Locker Rooms
OA Requirement 1 ..... 0.0 CFM/person
OA Requirement 2 ..... 0.50 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 0.90 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 0.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 360 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
N	2000.0	360	0	0
W	776.0	0	0	0

3.1. Construction Types for Exposure N
Wall Type ..... Face Brick + R-11 Batt
1st Window Type ..... Sample Window Assembly

3.2. Construction Types for Exposure W
Wall Type ..... Face Brick + R-11 Batt

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	700.0	0	0

4.1. Construction Types for Exposure H
Roof Type ... Built-up Roof + R-14 Board + 4" LW Concrete

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 3-1

1. General Details:
Floor Area ..... 4534.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... OFFICE: Office Space
OA Requirement 1 ..... 20.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.10 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 8000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 42 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	622.0	0	0	0
S	1635.0	180	0	0

3.1. Construction Types for Exposure E
Wall Type ..... Face Brick + R-11 Batt

3.2. Construction Types for Exposure S
Wall Type ..... Face Brick + R-11 Batt
1st Window Type ..... Sample Window Assembly

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	3600.0	0	0

4.1. Construction Types for Exposure H
Roof Type ... Built-up Roof + R-14 Board + 4" LW Concrete

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 3-2

1. General Details:
Floor Area ..... 5529.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... OFFICE: Office Space
OA Requirement 1 ..... 20.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.10 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 8000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 50 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
E	622.0	0	0	0
S	1896.0	180	0	0

3.1. Construction Types for Exposure E
Wall Type ..... Face Brick + R-11 Batt

3.2. Construction Types for Exposure S
Wall Type ..... Face Brick + R-11 Batt
1st Window Type ..... Sample Window Assembly

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	3600.0	0	0

4.1. Construction Types for Exposure H
Roof Type ... Built-up Roof + R-14 Board + 4" LW Concrete

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 3-3

1. General Details:
Floor Area ..... 8100.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... OFFICE: Office Space
OA Requirement 1 ..... 20.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.10 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 8000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 50 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	622.0	0	0	0
N	1896.0	180	0	0

3.1. Construction Types for Exposure W
Wall Type ..... Face Brick + R-11 Batt

3.2. Construction Types for Exposure N
Wall Type ..... Face Brick + R-11 Batt
1st Window Type ..... Sample Window Assembly

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	3600.0	0	0

4.1. Construction Types for Exposure H
Roof Type ... Built-up Roof + R-14 Board + 4" LW Concrete

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 3-4

1. General Details:

Floor Area	4534.0	ft²
Avg. Ceiling Height	10.0	ft
Building Weight	70.0	lb/ft²

1.1. OA Ventilation Requirements:

Space Usage	OFFICE: Office Space	
OA Requirement 1	20.0	CFM/person
OA Requirement 2	0.00	CFM/ft²

2. Internals:

2.1. Overhead Lighting:

Fixture Type	Recessed (Unvented)	
Wattage	1.10	W/ft²
Ballast Multiplier	1.08	
Schedule	Sample Schedule	

2.2. Task Lighting:

Wattage	0.00	W/ft²
Schedule	None	

2.3. Electrical Equipment:

Wattage	8000.0	Watts
Schedule	Sample Schedule	

2.4. People:

Occupancy	42	People
Activity Level	Office Work	
Sensible	245.0	BTU/hr/person
Latent	205.0	BTU/hr/person
Schedule	Sample Schedule	

2.5. Miscellaneous Loads:

Sensible	0	BTU/hr
Schedule	None	
Latent	0	BTU/hr
Schedule	None	

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	622.0	0	0	0
S	1635.0	180	0	0

3.1. Construction Types for Exposure W

Wall Type ..... Face Brick + R-11 Batt

3.2. Construction Types for Exposure S

Wall Type ..... Face Brick + R-11 Batt
1st Window Type ..... Sample Window Assembly

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	3600.0	0	0

4.1. Construction Types for Exposure H

Roof Type ... Built-up Roof + R-14 Board + 4" LW Concrete

5. Infiltration:

Design Cooling	0.00	CFM
Design Heating	0.00	CFM
Energy Analysis	0.00	CFM

Infiltration occurs only when the fan is off.

6. Floors:

Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:

(No partition data).

AHU 4-1

1. General Details:
Floor Area ..... 5600.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... OFFICE: Office Space
OA Requirement 1 ..... 20.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.10 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 4000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 28 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	834.0	0	0	0
S	1806.0	130	0	0
E	834.0	0	0	0

3.1. Construction Types for Exposure W
Wall Type ..... Face Brick + R-11 Batt

3.2. Construction Types for Exposure S
Wall Type ..... Face Brick + R-11 Batt
1st Window Type ..... Sample Window Assembly

3.3. Construction Types for Exposure E
Wall Type ..... Face Brick + R-11 Batt

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	5600.0	0	0

4.1. Construction Types for Exposure H
Roof Type ... Built-up Roof + R-14 Board + 4" LW Concrete

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 4-2

1. General Details:
Floor Area ..... 5600.0 ft²
Avg. Ceiling Height ..... 10.0 ft
Building Weight ..... 70.0 lb/ft²

1.1. OA Ventilation Requirements:
Space Usage ..... OFFICE: Office Space
OA Requirement 1 ..... 20.0 CFM/person
OA Requirement 2 ..... 0.00 CFM/ft²

2. Internals:

2.1. Overhead Lighting:
Fixture Type ..... Recessed (Unvented)
Wattage ..... 1.10 W/ft²
Ballast Multiplier 1.08
Schedule ..... Sample Schedule

2.2. Task Lighting:
Wattage ..... 0.00 W/ft²
Schedule ..... None

2.3. Electrical Equipment:
Wattage ..... 4000.0 Watts
Schedule ..... Sample Schedule

2.4. People:
Occupancy ..... 50 People
Activity Level ..... Office Work
Sensible ..... 245.0 BTU/hr/person
Latent ..... 205.0 BTU/hr/person
Schedule ..... Sample Schedule

2.5. Miscellaneous Loads:
Sensible ..... 0 BTU/hr
Schedule ..... None
Latent ..... 0 BTU/hr
Schedule ..... None

3. Walls, Windows, Doors:

Exp.	Wall Gross Area (ft²)	Window 1 Qty.	Window 2 Qty.	Door 1 Qty.
W	834.0	0	0	0
N	1806.0	130	0	0
E	834.0	0	0	0

3.1. Construction Types for Exposure W
Wall Type ..... Face Brick + R-11 Batt

3.2. Construction Types for Exposure N
Wall Type ..... Face Brick + R-11 Batt
1st Window Type ..... Sample Window Assembly

3.3. Construction Types for Exposure E
Wall Type ..... Face Brick + R-11 Batt

4. Roofs, Skylights:

Exp.	Roof Gross Area (ft²)	Roof Slope (deg.)	Skylight Qty.
H	5600.0	0	0

4.1. Construction Types for Exposure H
Roof Type ... Built-up Roof + R-14 Board + 4" LW Concrete

5. Infiltration:
Design Cooling ..... 0.00 CFM
Design Heating ..... 0.00 CFM
Energy Analysis ..... 0.00 CFM
Infiltration occurs only when the fan is off.

6. Floors:
Type ..... Floor Above Conditioned Space
(No additional input required for this floor type).

7. Partitions:
(No partition data).

AHU 1-1 Input Data

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

1. General Details:

Air System Name	AHU 1-1
Equipment Class	Chilled Water AHU
Air System Type	Single Zone CAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Central Heating Data:

Supply Temperature	95.0	°F
Heating Source	Electric Resistance	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	2.50	in wg
Overall Efficiency	54	%

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
AHU 1-1	x1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule	thermostat
Unoccupied Cooling is	Available

Supply Terminals Data:
Zone ..... All
Terminal Type ..... Diffuser
Minimum Airflow ..... 0.0 CFM

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 2291.0 CFM
Ventilation Fan Airflow ..... 1688.3 CFM
Heating Supply Temperature ..... 95.0 °F

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 5 %
Cooling Latent ..... 5 %
Heating ..... 5 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Sum of space airflow rates
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	2291.0	-	-	

5. Equipment Data
No Equipment Data required for this system.

AHU 1-2 Input Data

1. General Details:

Air System Name	AHU 1-2
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Temperature Reset by Outdoor Air Schedule	
Max. Supply Temperature	57.0	°F
OAT for Min. Supply Temperature	95.0	°F
OAT for Max. Supply Temperature	30.0	°F

Supply Fan Data:

Fan Type	BI/AF with Variable Frequency Drive	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	43	%

% Airflow	100	90	80	70	60	50
% kW	100	77	57	42	30	21

% Airflow	40	30	20	10	0
% kW	15	13	10	7	5

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule ..... thermostat
Unoccupied Cooling is ..... Available

Supply Terminals Data:
Zone ..... All
Terminal Type ..... VAV box with RH
Minimum Airflow ..... 30 % of supply air

Reheat Coil Source ..... Electric Resistance
Reheat Coil Schedule ..... JFMAMJJASOND

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 4739.1 CFM
Ventilation Fan Airflow ..... 4500.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 5 %
Cooling Latent ..... 5 %
Heating ..... 5 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	4739.1	-	46.6	

5. Equipment Data
No Equipment Data required for this system.

AHU 1-3 Input Data

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

1. General Details:

Air System Name	AHU 1-3
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Contrat Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Temperature Reset by Outdoor Air Schedule	
Max. Supply Temperature	67.0	°F
OAT for Min. Supply Temperature	95.0	°F
OAT for Max. Supply Temperature	30.0	°F

Supply Fan Data:

Fan Type	BI/AF with Variable Frequency Drive	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	43	%

% Airflow	100	90	80	70	60	50
% kW	100	77	57	42	30	21

% Airflow	40	30	20	10	0
% kW	15	13	10	7	5

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule ..... thermostat
Unoccupied Cooling is ..... Available

Supply Terminals Data:
Zone ..... All
Terminal Type ..... VAV box with RH
Minimum Airflow ..... 30 % of supply air

Reheat Coil Source ..... Electric Resistance
Reheat Coil Schedule ..... JFMAMJJASOND

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 3093.3 CFM
Ventilation Fan Airflow ..... 1700.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 5 %
Cooling Latent ..... 5 %
Heating ..... 5 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	3093.3	-	28.2	

5. Equipment Data
No Equipment Data required for this system.

AHU 1-4 Input Data

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

1. General Details:

Air System Name	AHU 1-4
Equipment Class	Chilled Water AHU
Air System Type	Single Zone CAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Central Heating Data:

Supply Temperature	95.0	°F
Heating Source	Electric Resistance	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	2.50	in wg
Overall Efficiency	54	%

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
AHU 1-4	x1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule	thermostat
Unoccupied Cooling is	Available

Supply Terminals Data:
- Zone ..... All
- Terminal Type ..... Diffuser
- Minimum Airflow ..... 0.0 CFM

Zone Heating Units:
- Zone ..... All
- Zone Heating Unit Type ..... None

- Zone Unit Heat Source ..... Hot Water
- Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:
- Cooling Supply Temperature ..... 55.0 °F
- Supply Fan Airflow ..... 733.6 CFM
- Ventilation Fan Airflow ..... 150.0 CFM
- Heating Supply Temperature ..... 95.0 °F

Hydronic Sizing Specifications:
- Chilled Water Delta-T ..... 10.0 °F
- Hot Water Delta-T ..... 20.0 °F

Safety Factors:
- Cooling Sensible ..... 5 %
- Cooling Latent ..... 5 %
- Heating ..... 5 %

Zone Sizing Data:
- Zone Airflow Sizing Method ..... Sum of space airflow rates
- Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	733.6	-	-	

5. Equipment Data

No Equipment Data required for this system.

AHU 1-5 Input Data

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

1. General Details:

Air System Name	AHU 1-5	
Equipment Class	Chilled Water AHU	
Air System Type	Single Zone CAV	
Number of zones	1	

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Central Heating Data:

Supply Temperature	95.0	°F
Heating Source	Electric Resistance	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	2.50	in wg
Overall Efficiency	54	%

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
AHU 1-5	x1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule	thermostat
Unoccupied Cooling is	Available

Supply Terminals Data:

Zone	All	
Terminal Type	Diffuser	
Minimum Airflow	0.0	CFM

Zone Heating Units:

Zone	All	
Zone Heating Unit Type	None	
Zone Unit Heat Source	Hot Water	
Zone Heating Unit Schedule	JFMAMJJASOND	

4. Sizing Data (Computer-Generated):

System Sizing Data:

Cooling Supply Temperature	55.0	°F
Supply Fan Airflow	9000.0	CFM
Ventilation Fan Airflow	9000.0	CFM
Heating Supply Temperature	95.0	°F

Hydronic Sizing Specifications:

Chilled Water Delta-T	10.0	°F
Hot Water Delta-T	20.0	°F

Safety Factors:

Cooling Sensible	5	%
Cooling Latent	5	%
Heating	5	%

Zone Sizing Data:

Zone Airflow Sizing Method	Sum of space airflow rates
Space Airflow Sizing Method	Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	* (CFM)
1	9000.0	-	-	

5. Equipment Data

No Equipment Data required for this system.

AHU 2-1 Input Data

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

1. General Details:

Air System Name	AHU 2-1
Equipment Class	Chilled Water AHU
Air System Type	Single Zone CAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.100	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Central Heating Data:

Supply Temperature	95.0	°F
Heating Source	Electric Resistance	
Schedule	JFMAMJJASOND	
Capacity Control	Cycled or Staged Compressor - Fan On	

Supply Fan Data:

Fan Type	Forward Curved	
Configuration	Draw-thru	
Fan Performance	2.50	in wg
Overall Efficiency	54	%

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1	
AHU 2-1	x1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule	thermostat
Unoccupied Cooling is	Available

Supply Terminals Data:
- Zone ..... All
- Terminal Type ..... Diffuser
- Minimum Airflow ..... 0.0 CFM

Zone Heating Units:
- Zone ..... All
- Zone Heating Unit Type ..... None

- Zone Unit Heat Source ..... Hot Water
- Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):

System Sizing Data:
- Cooling Supply Temperature ..... 55.0 °F
- Supply Fan Airflow ..... 188.9 CFM
- Ventilation Fan Airflow ..... 60.0 CFM
- Heating Supply Temperature ..... 95.0 °F

Hydronic Sizing Specifications:
- Chilled Water Delta-T ..... 10.0 °F
- Hot Water Delta-T ..... 20.0 °F

Safety Factors:
- Cooling Sensible ..... 5 %
- Cooling Latent ..... 5 %
- Heating ..... 5 %

Zone Sizing Data:
- Zone Airflow Sizing Method ..... Sum of space airflow rates
- Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	188.9	-	-	

5. Equipment Data

No Equipment Data required for this system.

AHU 2-2 Input Data

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

1. General Details:

Air System Name	AHU 2-2
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Temperature Reset by Outdoor Air Schedule	
Max. Supply Temperature	57.0	°F
OAT for Min. Supply Temperature	95.0	°F
OAT for Max. Supply Temperature	30.0	°F

Supply Fan Data:

Fan Type	BI/AF with Variable Frequency Drive	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	43	%

% Airflow	100	90	80	70	60	50
% kW	100	77	57	42	30	21

% Airflow	40	30	20	10	0
% kW	15	13	10	7	5

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule ..... thermostat
Unoccupied Cooling is ..... Available

Supply Terminals Data:
Zone ..... All
Terminal Type ..... VAV box with RH
Minimum Airflow ..... 30 % of supply air

Reheat Coil Source ..... Electric Resistance
Reheat Coil Schedule ..... JFMAMJJASOND

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 3114.0 CFM
Ventilation Fan Airflow ..... 3114.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	3114.0	-	25.8	

5. Equipment Data
No Equipment Data required for this system.

AHU 2-3 Input Data

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

1. General Details:

Air System Name	AHU 2-3
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Temperature Reset by Outdoor Air Schedule	
Max. Supply Temperature	57.0	°F
OAT for Min. Supply Temperature	95.0	°F
OAT for Max. Supply Temperature	30.0	°F

Supply Fan Data:

Fan Type	BI/AF with Variable Frequency Drive	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	43	%

% Airflow	100	90	80	70	60	50
% kW	100	77	57	42	30	21

% Airflow	40	30	20	10	0
% kW	15	13	10	7	5

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule ..... thermostat
Unoccupied Cooling is ..... Available

Supply Terminals Data:
Zone ..... All
Terminal Type ..... VAV box with RH
Minimum Airflow ..... 30 % of supply air

Reheat Coil Source ..... Electric Resistance
Reheat Coil Schedule ..... JFMAMJJASOND

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 3784.0 CFM
Ventilation Fan Airflow ..... 660.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	3784.0	-	33.1	

5. Equipment Data
No Equipment Data required for this system.

AHU 2-4 Input Data

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

1. General Details:

Air System Name	AHU 2-4
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Temperature Reset by Outdoor Air Schedule	
Max. Supply Temperature	57.0	°F
OAT for Min. Supply Temperature	95.0	°F
OAT for Max. Supply Temperature	30.0	°F

Supply Fan Data:

Fan Type	BI/AF with Variable Frequency Drive	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	43	%

% Airflow	100	90	80	70	60	50
% kW	100	77	57	42	30	21

% Airflow	40	30	20	10	0
% kW	15	13	10	7	5

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule ..... thermostat
Unoccupied Cooling is ..... Available

Supply Terminals Data:
Zone ..... All
Terminal Type ..... VAV box with RH
Minimum Airflow ..... 30 % of supply air

Reheat Coil Source ..... Electric Resistance
Reheat Coil Schedule ..... JFMAMJJASOND

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 4454.1 CFM
Ventilation Fan Airflow ..... 3992.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	4454.1	-	36.4	

5. Equipment Data
No Equipment Data required for this system.

AHU 3-1 Input Data

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

1. General Details:

Air System Name	AHU 3-1
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Temperature Reset by Outdoor Air Schedule	
Max. Supply Temperature	57.0	°F
OAT for Min. Supply Temperature	95.0	°F
OAT for Max. Supply Temperature	30.0	°F

Supply Fan Data:

Fan Type	BI/AF with Variable Frequency Drive	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	43	%

% Airflow	100	90	80	70	60	50
% kW	100	77	57	42	30	21

% Airflow	40	30	20	10	0
% kW	15	13	10	7	5

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule ..... thermostat
Unoccupied Cooling is ..... Available

Supply Terminals Data:
Zone ..... All
Terminal Type ..... VAV box with RH
Minimum Airflow ..... 30 % of supply air

Reheat Coil Source ..... Electric Resistance
Reheat Coil Schedule ..... JFMAMJJASOND

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 2541.6 CFM
Ventilation Fan Airflow ..... 840.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	2541.6	-	28.4	

5. Equipment Data
No Equipment Data required for this system.

AHU 3-2 Input Data

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

1. General Details:

Air System Name	AHU 3-2
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Temperature Reset by Outdoor Air Schedule	
Max. Supply Temperature	57.0	°F
OAT for Min. Supply Temperature	95.0	°F
OAT for Max. Supply Temperature	30.0	°F

Supply Fan Data:

Fan Type	BI/AF with Variable Frequency Drive	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	43	%

% Airflow	100	90	80	70	60	50
% kW	100	77	57	42	30	21

% Airflow	40	30	20	10	0
% kW	15	13	10	7	5

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule ..... thermostat
Unoccupied Cooling Is ..... Available

Supply Terminals Data:
Zone ..... All
Terminal Type ..... VAV box with RH
Minimum Airflow ..... 30 % of supply air

Reheat Coil Source ..... Electric Resistance
Reheat Coil Schedule ..... JFMAMJJASOND

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 2754.9 CFM
Ventilation Fan Airflow ..... 1000.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	2754.9	-	30.1	

5. Equipment Data
No Equipment Data required for this system.

AHU 3-3 Input Data

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

1. General Details:

Air System Name	AHU 3-3
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Temperature Reset by Outdoor Air Schedule	
Max. Supply Temperature	57.0	°F
OAT for Min. Supply Temperature	95.0	°F
OAT for Max. Supply Temperature	30.0	°F

Supply Fan Data:

Fan Type	BI/AF with Variable Frequency Drive	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	43	%

% Airflow	100	90	80	70	60	50
% kW	100	77	57	42	30	21

% Airflow	40	30	20	10	0
% kW	15	13	10	7	5

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule ..... thermostat
Unoccupied Cooling Is ..... Available

Supply Terminals Data:
Zone ..... All
Terminal Type ..... VAV box with RH
Minimum Airflow ..... 30 % of supply air

Reheat Coil Source ..... Electric Resistance
Reheat Coil Schedule ..... JFMAMJJASOND

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 2963.1 CFM
Ventilation Fan Airflow ..... 1000.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	2963.1	-	31.2	

5. Equipment Data
No Equipment Data required for this system.

AHU 3-4 Input Data

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

1. General Details:

Air System Name	AHU 3-4
Equipment Class	Chilled Water AHU
Air System Type	VAV
Number of zones	1

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Temperature Reset by Outdoor Air Schedule	
Max. Supply Temperature	57.0	°F
OAT for Min. Supply Temperature	95.0	°F
OAT for Max. Supply Temperature	30.0	°F

Supply Fan Data:

Fan Type	BI/AF with Variable Frequency Drive	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	43	%

% Airflow	100	90	80	70	60	50
% kW	100	77	57	42	30	21

% Airflow	40	30	20	10	0
% kW	15	13	10	7	5

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule ..... thermostat
Unoccupied Cooling is ..... Available

Supply Terminals Data:
Zone ..... All
Terminal Type ..... VAV box with RH
Minimum Airflow ..... 30 % of supply air

Reheat Coil Source ..... Electric Resistance
Reheat Coil Schedule ..... JFMAMJJASOND

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 2561.1 CFM
Ventilation Fan Airflow ..... 840.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	2561.1	-	28.5	

5. Equipment Data
No Equipment Data required for this system.

AHU 4-1 Input Data

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

1. General Details:

Air System Name	AHU 4-1	
Equipment Class	Chilled Water AHU	
Air System Type	VAV	
Number of zones	1	

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Temperature Reset by Outdoor Air Schedule	
Max. Supply Temperature	57.0	°F
OAT for Min. Supply Temperature	95.0	°F
OAT for Max. Supply Temperature	30.0	°F

Supply Fan Data:

Fan Type	BI/AF with Variable Frequency Drive	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	43	%

% Airflow	100	90	80	70	60	50
% kW	100	77	57	42	30	21

% Airflow	40	30	20	10	0
% kW	15	13	10	7	5

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule ..... thermostat
Unoccupied Cooling is ..... Available

Supply Terminals Data:
Zone ..... All
Terminal Type ..... VAV box with RH
Minimum Airflow ..... 30 % of supply air

Reheat Coil Source ..... Electric Resistance
Reheat Coil Schedule ..... JFMAMJJASOND

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 2083.4 CFM
Ventilation Fan Airflow ..... 520.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	2083.4	-	32.6	

5. Equipment Data
No Equipment Data required for this system.

AHU 4-2 Input Data

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

1. General Details:

Air System Name	AHU 4-2	
Equipment Class	Chilled Water AHU	
Air System Type	VAV	
Number of zones	1	

2. System Components:

Ventilation Air Data:

Airflow Control	Demand Controlled Ventilation	
Ventilation Sizing Method	ASHRAE Std 62-2001	
Minimum Airflow	0	%
Damper Leak Rate	0	%
Minimum CO2 Differential	100	ppm
Maximum CO2 Differential	700	ppm
Outdoor Air CO2 Level	400	ppm

Ventilation Reclaim Data:

Reclaim Type	Sensible and Latent Heat	
Thermal Efficiency	60	%
Input kW	1.0	kW
Schedule	JFMAMJJASOND	

Central Cooling Data:

Supply Air Temperature	55.0	°F
Coil Bypass Factor	0.050	
Cooling Source	Chilled Water	
Schedule	JFMAMJJASOND	
Capacity Control	Temperature Reset by Outdoor Air Schedule	
Max. Supply Temperature	57.0	°F
OAT for Min. Supply Temperature	95.0	°F
OAT for Max. Supply Temperature	30.0	°F

Supply Fan Data:

Fan Type	BI/AF with Variable Frequency Drive	
Configuration	Draw-thru	
Fan Performance	4.00	in wg
Overall Efficiency	43	%

% Airflow	100	90	80	70	60	50
% kW	100	77	57	42	30	21

% Airflow	40	30	20	10	0
% kW	15	13	10	7	5

Duct System Data:

Supply Duct Data:

Duct Heat Gain	0	%
Duct Leakage	0	%

Return Duct or Plenum Data:

Return Air Via	Return Air Plenum	
Wall Heat Gain to Plenum	0	%
Roof Heat Gain to Plenum	70	%
Lighting Heat Gain to Plenum	30	%

3. Zone Components:

Space Assignments:

Zone 1: Zone 1

Thermostats and Zone Data:

Zone	All	
Cooling T-stat: Occ.	75.0	°F
Cooling T-stat: Unocc.	85.0	°F
Heating T-stat: Occ.	70.0	°F
Heating T-stat: Unocc.	60.0	°F
T-stat Throttling Range	3.00	°F
Diversity Factor	100	%
Direct Exhaust Airflow	0.0	CFM
Direct Exhaust Fan kW	0.0	kW

Thermostat Schedule ..... thermostat
Unoccupied Cooling is ..... Available

Supply Terminals Data:
Zone ..... All
Terminal Type ..... VAV box with RH
Minimum Airflow ..... 30 % of supply air

Reheat Coil Source ..... Electric Resistance
Reheat Coil Schedule ..... JFMAMJJASOND

Zone Heating Units:
Zone ..... All
Zone Heating Unit Type ..... None

Zone Unit Heat Source ..... Hot Water
Zone Heating Unit Schedule ..... JFMAMJJASOND

4. Sizing Data (Computer-Generated):
System Sizing Data:
Cooling Supply Temperature ..... 55.0 °F
Supply Fan Airflow ..... 2239.6 CFM
Ventilation Fan Airflow ..... 1000.0 CFM

Hydronic Sizing Specifications:
Chilled Water Delta-T ..... 10.0 °F
Hot Water Delta-T ..... 20.0 °F

Safety Factors:
Cooling Sensible ..... 0 %
Cooling Latent ..... 0 %
Heating ..... 0 %

Zone Sizing Data:
Zone Airflow Sizing Method ..... Peak zone sensible load
Space Airflow Sizing Method ..... Individual peak space loads

Zone	Supply Airflow (CFM)	Zone Htg Unit (MBH)	Reheat Coil (MBH)	- (CFM)
1	2239.6	-	33.2	

5. Equipment Data
No Equipment Data required for this system.

Air System Sizing Summary for AHU 1-1

Project Name: Jackson Barracks Spirit — 04/12/2006
Prepared by: L. T. Vivien, Jr. & Associates, Inc. — 03:05PM

Air System Information

Air System Name	AHU 1-1	Number of zones	1
Equipment Class	CW AHU	Floor Area	11255.0 ft²
Air System Type	SZCAV	Location	New Orleans IAP, Louisiana

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Sum of space airflow rates	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	7.2	Tons	Load occurs at	Jul 1500	
Total coil load	86.2	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	74.3	MBH	Entering DB / WB	83.3 / 66.5	°F
Coil CFM at Jul 1500	2291	CFM	Leaving DB / WB	53.3 / 52.5	°F
Max block CFM	2291	CFM	Coil ADP	51.7	°F
Sum of peak zone CFM	2291	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.861		Resulting RH	41	%
ft²/Ton	1566.7		Design supply temp.	55.0	°F
BTU/(hr-ft²)	7.7		Zone T-stat Check	0 of 1	OK
Water flow @ 10.0 °F rise	17.25	gpm	Max zone temperature deviation	0.2	°F

Central Heating Coil Sizing Data

Max coil load	49.9	MBH	Load occurs at	Des Htg	
Coil CFM at Des Htg	2291	CFM	BTU/(hr-ft²)	4.4	
Max coil CFM	2291	CFM	Ent. DB / Lvg DB	57.4 / 77.6	°F
Water flow @ 20.0 °F drop	N/A				

Supply Fan Sizing Data

Actual max CFM	2291	CFM	Fan motor BHP	1.67	BHP
Standard CFM	2289	CFM	Fan motor kW	1.24	kW
Actual max CFM/ft²	0.20	CFM/ft²	Fan static	2.50	in wg

Outdoor Ventilation Air Data

Design airflow CFM	1688	CFM	CFM/person	168.83	CFM/person
CFM/ft²	0.15	CFM/ft²			

Air System Design Load Summary for AHU 1-1

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500 COOLING OA DB / WB 95.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	560 ft²	3312	-	560 ft²	-	-
Wall Transmission	5548 ft²	9159	-	5548 ft²	14098	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	560 ft²	4823	-	560 ft²	11200	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	11255 ft²	0	-	11255 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	9724 W	18845	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	2000 W	6250	-	0	0	-
People	10	1873	2050	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	2213	103	5%	1265	0
>> Total Zone Loads	-	**46475**	**2153**	-	**26563**	**0**
Zone Conditioning	-	57306	2153	-	25800	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	0	-	0	0	-
Plenum Lighting Load	30%	9954	-	0	0	-
Return Fan Load	2291 CFM	0	-	2291 CFM	0	-
Ventilation Load	499 CFM	2755	9793	1688 CFM	28326	0
Supply Fan Load	2291 CFM	4246	-	2291 CFM	-4246	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**74260**	**11946**	-	**49881**	**0**
Central Cooling Coil	-	74260	11946	-	0	0
Central Heating Coil	-	0	-	-	49881	-
>> Total Conditioning	-	**74260**	**11946**	-	**49881**	**0**
Key:	**Positive values are clg loads** **Negative values are htg loads**			**Positive values are htg loads** **Negative values are clg loads**		

Air System Sizing Summary for AHU 1-2

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

Air System Information

Air System Name	AHU 1-2	Number of zones	1	
Equipment Class	CW AHU	Floor Area	5824.0	ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	25.6	Tons	Load occurs at	Jul 1500	
Total coil load	307.1	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	174.4	MBH	Entering DB / WB	85.7 / 72.1	°F
Coil CFM at Jul 1500	4739	CFM	Leaving DB / WB	51.5 / 51.1	°F
Max block CFM at Jun 1700	4739	CFM	Coil ADP	49.8	°F
Sum of peak zone CFM	4739	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.568		Resulting RH	52	%
ft²/Ton	227.5		Design supply temp.	55.0	°F
BTU/(hr-ft²)	52.7		Zone T-stat Check	0 of 1	OK
Water flow @ 10.0 °F rise	61.46	gpm	Max zone temperature deviation	0.4	°F

Supply Fan Sizing Data

Actual max CFM at Jun 1700	4739	CFM	Fan motor BHP	6.94	BHP
Standard CFM	4734	CFM	Fan motor kW	5.17	kW
Actual max CFM/ft²	0.81	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	4500	CFM	CFM/person	15.00	CFM/person
CFM/ft²	0.77	CFM/ft²			

Air System Design Load Summary for AHU 1-2

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500 COOLING OA DB / WB 95.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	800 ft²	6743	-	800 ft²	-	-
Wall Transmission	2562 ft²	4093	-	2562 ft²	6510	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	800 ft²	6889	-	800 ft²	16000	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	5824 ft²	0	-	5824 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	7548 W	14628	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	2000 W	6250	-	0	0	-
People	300	56186	61500	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	4739	3075	5%	1126	0
>> Total Zone Loads	-	**99528**	**64575**	-	**23636**	**0**
Zone Conditioning	-	119789	64575	-	22051	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	0	-	0	0	-
Plenum Lighting Load	30%	7726	-	0	0	-
Return Fan Load	4739 CFM	0	-	1422 CFM	0	-
Ventilation Load	4500 CFM	29243	68152	1422 CFM	22860	0
Supply Fan Load	4739 CFM	17648	-	1422 CFM	-2294	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**174406**	**132727**	-	**42617**	**0**
Central Cooling Coil	-	174406	132731	-	0	0
Terminal Reheat Coils	-	0	-	-	42612	-
>> Total Conditioning	-	**174406**	**132731**	-	**42612**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for AHU 1-3

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

Air System Information

Air System Name	AHU 1-3	Number of zones	1	
Equipment Class	CW AHU	Floor Area	7851.0	ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	12.9	Tons	Load occurs at	Aug 1500	
Total coil load	155.0	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	107.7	MBH	Entering DB / WB	83.8 / 68.0	°F
Coil CFM at Aug 1500	3093	CFM	Leaving DB / WB	51.5 / 50.9	°F
Max block CFM at Oct 1500	3093	CFM	Coil ADP	49.8	°F
Sum of peak zone CFM	3093	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.695		Resulting RH	44	%
ft²/Ton	607.6		Design supply temp.	55.0	°F
BTU/(hr-ft²)	19.7		Zone T-stat Check	0 of 1	OK
Water flow @ 10.0 °F rise	31.03	gpm	Max zone temperature deviation	0.1	°F

Supply Fan Sizing Data

Actual max CFM at Oct 1500	3093	CFM	Fan motor BHP	4.63	BHP
Standard CFM	3090	CFM	Fan motor kW	3.38	kW
Actual max CFM/ft²	0.39	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	1700	CFM	CFM/person	20.00	CFM/person
CFM/ft²	0.22	CFM/ft²			

Air System Design Load Summary for AHU 1-3

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1500 COOLING OA DB / WB 95.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	320 ft²	2877	-	320 ft²	-	-
Wall Transmission	2430 ft²	5188	-	2430 ft²	6175	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	320 ft²	2756	-	320 ft²	6400	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	7851 ft²	0	-	7851 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	9327 W	18075	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	5000 W	15625	-	0	0	-
People	85	15919	17425	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	3022	871	5%	629	0
>> Total Zone Loads	-	**63462**	**18296**	-	**13204**	**0**
Zone Conditioning	-	77096	18296	-	12077	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	0	-	0	0	-
Plenum Lighting Load	30%	9547	-	0	0	-
Return Fan Load	3093 CFM	0	-	928 CFM	0	-
Ventilation Load	1574 CFM	9536	29048	928 CFM	14932	0
Supply Fan Load	3093 CFM	11519	-	928 CFM	-1497	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**107698**	**47344**	-	**25512**	**0**
Central Cooling Coil	-	107698	47347	-	0	0
Terminal Reheat Coils	-	0	-	-	25510	-
>> Total Conditioning	-	**107698**	**47347**	-	**25510**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for AHU 1-4

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

Air System Information

Air System Name	AHU 1-4		Number of zones	1	
Equipment Class	CW AHU		Floor Area	1733.0	ft²
Air System Type	SZCAV		Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Sum of space airflow rates		Calculation Months	Jan to Dec	
Space CFM	Individual peak space loads		Sizing Data	Calculated	

Central Cooling Coil Sizing Data

Total coil load	2.3	Tons	Load occurs at	Jun 1400	
Total coil load	27.6	MBH	OA DB / WB	93.5 / 79.9	°F
Sensible coil load	22.8	MBH	Entering DB / WB	82.0 / 65.6	°F
Coil CFM at Jun 1400	734	CFM	Leaving DB / WB	53.3 / 52.6	°F
Max block CFM	734	CFM	Coil ADP	51.8	°F
Sum of peak zone CFM	734	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.819		Resulting RH	43	%
ft²/Ton	748.2		Design supply temp.	55.0	°F
BTU/(hr-ft²)	16.0		Zone T-stat Check	0 of 1	OK
Water flow @ 10.0 °F rise	5.56	gpm	Max zone temperature deviation	0.1	°F

Central Heating Coil Sizing Data

Max coil load	4.6	MBH	Load occurs at	Des Htg	
Coil CFM at Des Htg	734	CFM	BTU/(hr-ft²)	2.6	
Max coil CFM	734	CFM	Ent. DB / Lvg DB	66.2 / 71.9	°F
Water flow @ 20.0 °F drop	N/A				

Supply Fan Sizing Data

Actual max CFM	734	CFM	Fan motor BHP	0.53	BHP
Standard CFM	733	CFM	Fan motor kW	0.40	kW
Actual max CFM/ft²	0.42	CFM/ft²	Fan static	2.50	in wg

Outdoor Ventilation Air Data

Design airflow CFM	150	CFM	CFM/person	15.00	CFM/person
CFM/ft²	0.09	CFM/ft²			

Air System Design Load Summary for AHU 1-4

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1400 COOLING OA DB / WB 93.5 °F / 79.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	80 ft²	503	-	80 ft²	-	-
Wall Transmission	713 ft²	925	-	713 ft²	1812	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	80 ft²	629	-	80 ft²	1600	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	1733 ft²	0	-	1733 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	2246 W	4281	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	2000 W	6210	-	0	0	-
People	10	1832	2050	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	719	103	5%	171	0
>> Total Zone Loads	-	**15100**	**2153**	-	**3582**	**0**
Zone Conditioning	-	18295	2153	-	3258	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	0	-	0	0	-
Plenum Lighting Load	30%	2299	-	0	0	-
Return Fan Load	734 CFM	0	-	734 CFM	0	-
Ventilation Load	150 CFM	810	2877	150 CFM	2554	0
Supply Fan Load	734 CFM	1360	-	734 CFM	-1360	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**22763**	**5030**	-	**4463**	**0**
Central Cooling Coil	-	22763	5030	-	0	0
Central Heating Coil	-	0	-	-	4453	-
>> Total Conditioning	-	**22763**	**5030**	-	**4453**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for AHU 1-5

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

Air System Information

Air System Name	AHU 1-5		Number of zones	1	
Equipment Class	CW AHU		Floor Area	7514.0	ft²
Air System Type	SZCAV		Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Sum of space airflow rates		Calculation Months	Jan to Dec	
Space CFM	Individual peak space loads		Sizing Data	Calculated	

Central Cooling Coil Sizing Data

Total coil load	45.0	Tons	Load occurs at	Jun 1400	
Total coil load	540.3	MBH	OA DB / WB	93.5 / 79.9	°F
Sensible coil load	292.4	MBH	Entering DB / WB	85.1 / 73.1	°F
Coil CFM at Jun 1400	9000	CFM	Leaving DB / WB	55.0 / 54.6	°F
Max block CFM	9000	CFM	Coil ADP	53.4	°F
Sum of peak zone CFM	9000	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.541		Resulting RH	60	%
ft²/Ton	166.9		Design supply temp.	55.0	°F
BTU/(hr-ft²)	71.9		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	108.11	gpm	Max zone temperature deviation	0.0	°F

Central Heating Coil Sizing Data

Max coil load	177.5	MBH	Load occurs at	Des Htg	
Coil CFM at Des Htg	9000	CFM	BTU/(hr-ft²)	23.6	
Max coil CFM	9000	CFM	Ent. DB / Lvg DB	53.8 / 72.1	°F
Water flow @ 20.0 °F drop	N/A				

Supply Fan Sizing Data

Actual max CFM	9000	CFM	Fan motor BHP	6.56	BHP
Standard CFM	8990	CFM	Fan motor kW	4.89	kW
Actual max CFM/ft²	1.20	CFM/ft²	Fan static	2.60	in wg

Outdoor Ventilation Air Data

Design airflow CFM	9000	CFM	CFM/person	15.00	CFM/person
CFM/ft²	1.20	CFM/ft²			

Air System Design Load Summary for AHU 1-5

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1400 COOLING OA DB / WB 93.5 °F / 79.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 26.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	200 ft²	2817	-	200 ft²	-	-
Wall Transmission	6236 ft²	10341	-	6236 ft²	15846	-
Roof Transmission	7514 ft²	4396	-	7514 ft²	15080	-
Window Transmission	200 ft²	1572	-	200 ft²	4000	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	7514 ft²	0	-	7514 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	9738 W	18564	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	2000 W	6210	-	0	0	-
People	600	112571	123000	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	7824	6150	5%	1746	0
>> Total Zone Loads	-	**164295**	**129150**	-	**36673**	**0**
Zone Conditioning	-	197974	129150	-	36567	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	10257	-	0	0	-
Plenum Lighting Load	30%	9968	-	0	0	-
Return Fan Load	9000 CFM	0	-	9000 CFM	0	-
Ventilation Load	9000 CFM	54509	118698	9000 CFM	154106	0
Supply Fan Load	9000 CFM	16680	-	9000 CFM	-16680	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**289388**	**247848**	-	**173994**	**0**
Central Cooling Coil	-	292402	247854	-	0	0
Central Heating Coil	-	0	-	-	177492	-
>> Total Conditioning	-	**292402**	**247854**	-	**177492**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for AHU 2-1

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

Air System Information

Air System Name	AHU 2-1	Number of zones	1	
Equipment Class	CW AHU	Floor Area	1200.0	ft²
Air System Type	SZCAV	Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Sum of space airflow rates	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	0.7	Tons	Load occurs at	Jul 1500	
Total coil load	8.9	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	6.9	MBH	Entering DB / WB	87.2 / 67.6	°F
Coil CFM at Jul 1500	189	CFM	Leaving DB / WB	53.3 / 51.6	°F
Max block CFM	189	CFM	Coil ADP	49.5	°F
Sum of peak zone CFM	189	CFM	Bypass Factor	0.100	
Sensible heat ratio	0.776		Resulting RH	42	%
ft²/Ton	1615.2		Design supply temp.	55.0	°F
BTU/(hr-ft²)	7.4		Zone T-stat Check	0 of 1	OK
Water flow @ 10.0 °F rise	1.78	gpm	Max zone temperature deviation	0.3	°F

Central Heating Coil Sizing Data

Max coil load	0.7	MBH	Load occurs at	Des Htg	
Coil CFM at Des Htg	189	CFM	BTU/(hr-ft²)	0.6	
Max coil CFM	189	CFM	Ent. DB / Lvg DB	64.9 / 68.3	°F
Water flow @ 20.0 °F drop	N/A				

Supply Fan Sizing Data

Actual max CFM	189	CFM	Fan motor BHP	0.14	BHP
Standard CFM	189	CFM	Fan motor kW	0.10	kW
Actual max CFM/ft²	0.16	CFM/ft²	Fan static	2.50	in wg

Outdoor Ventilation Air Data

Design airflow CFM	60	CFM	CFM/person	15.00	CFM/person
CFM/ft²	0.05	CFM/ft²			

Air System Design Load Summary for AHU 2-1

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500 COOLING OA DB / WB 95.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	0 ft²	0	-	0 ft²	-	-
Wall Transmission	0 ft²	0	-	0 ft²	0	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	1555 W	3014	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	4	749	820	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	5% / 5%	188	41	5%	0	0
>> Total Zone Loads	-	**3951**	**861**	-	**0**	**0**
Zone Conditioning	-	4741	861	-	0	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	0	-	0	0	-
Plenum Lighting Load	30%	1592	-	0	0	-
Return Fan Load	189 CFM	0	-	189 CFM	0	-
Ventilation Load	60 CFM	231	1140	60 CFM	1036	0
Supply Fan Load	189 CFM	350	-	189 CFM	-350	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**6914**	**2001**	-	**686**	**0**
Central Cooling Coil	-	6914	2001	-	0	0
Central Heating Coil	-	0	-	-	686	-
>> Total Conditioning	-	**6914**	**2001**	-	**686**	**0**
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Air System Sizing Summary for AHU 2-2

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

Air System Information

Air System Name	AHU 2-2		Number of zones	1
Equipment Class	CW AHU		Floor Area	6228.0 ft²
Air System Type	VAV		Location	New Orleans IAP, Louisiana

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load		Calculation Months	Jan to Dec
Space CFM	Individual peak space loads		Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	17.0	Tons	Load occurs at	Aug 1500	
Total coil load	203.9	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	116.2	MBH	Entering DB / WB	86.1 / 72.3	°F
Coil CFM at Aug 1500	3114	CFM	Leaving DB / WB	51.5 / 51.1	°F
Max block CFM at Oct 1700	3114	CFM	Coil ADP	49.7	°F
Sum of peak zone CFM	3114	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.570		Resulting RH	51	%
ft²/Ton	366.5		Design supply temp.	55.0	°F
BTU/(hr-ft²)	32.7		Zone T-stat Check	0 of 1	OK
Water flow @ 10.0 °F rise	40.81	gpm	Max zone temperature deviation	0.4	°F

Supply Fan Sizing Data

Actual max CFM at Oct 1700	3114	CFM	Fan motor BHP	4.56	BHP
Standard CFM	3111	CFM	Fan motor kW	3.40	kW
Actual max CFM/ft²	0.50	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	3114	CFM	CFM/person	16.22	CFM/person
CFM/ft²	0.50	CFM/ft²			

Air System Design Load Summary for AHU 2-2

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1500 COOLING OA DB / WB 96.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 26.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	307 ft²	2760	-	307 ft²	-	-
Wall Transmission	2003 ft²	3939	-	2003 ft²	5090	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	307 ft²	2644	-	307 ft²	6140	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	6054 W	11732	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	1000 W	3125	-	0	0	-
People	192	36747	39360	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**60946**	**39360**	-	**11230**	**0**
Zone Conditioning	-	78478	39360	-	10303	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	0	-	0	0	-
Plenum Lighting Load	30%	6196	-	0	0	-
Return Fan Load	3114 CFM	0	-	902 CFM	0	-
Ventilation Load	3114 CFM	19882	48420	902 CFM	14512	0
Supply Fan Load	3114 CFM	11596	-	902 CFM	-1471	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**116152**	**87780**	-	**23344**	**0**
Central Cooling Coil	-	116152	87783	-	0	0
Terminal Reheat Coils	-	0	-	-	23342	-
>> Total Conditioning	-	**116152**	**87783**	-	**23342**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for AHU 2-3

Project Name: Jackson Barracks Spirit — 04/12/2006
Prepared by: L. T. Vivien, Jr. & Associates, Inc. — 03:05PM

Air System Information

Air System Name	AHU 2-3	Number of zones	1
Equipment Class	CW AHU	Floor Area	6000.0 ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	11.9	Tons	Load occurs at	Jul 1300	
Total coil load	142.4	MBH	OA DB / WB	93.3 / 79.6	°F
Sensible coil load	120.3	MBH	Entering DB / WB	81.1 / 64.2	°F
Coil CFM at Jul 1300	3783	CFM	Leaving DB / WB	51.6 / 50.9	°F
Max block CFM at Jun 1700	3784	CFM	Coil ADP	50.1	°F
Sum of peak zone CFM	3784	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.844		Resulting RH	40	%
ft²/Ton	506.4		Design supply temp.	55.0	°F
BTU/(hr-ft²)	23.7		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	28.51	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Jun 1700	3784	CFM	Fan motor BHP	5.54	BHP
Standard CFM	3780	CFM	Fan motor kW	4.13	kW
Actual max CFM/ft²	0.63	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	660	CFM	CFM/person	15.00	CFM/person
CFM/ft²	0.11	CFM/ft²			

Air System Design Load Summary for AHU 2-3

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1300 COOLING OA DB / WB 93.3 °F / 79.6 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 26.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	360 ft²	2055	-	360 ft²	-	-
Wall Transmission	2412 ft²	3845	-	2412 ft²	6129	-
Roof Transmission	700 ft²	354	-	700 ft²	1405	-
Window Transmission	360 ft²	2827	-	360 ft²	7200	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	7776 W	14560	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	15000 W	46247	-	0	0	-
People	44	7871	9020	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**77759**	**9020**	-	**14734**	**0**
Zone Conditioning	-	93650	9020	-	13770	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	826	-	0	0	-
Plenum Lighting Load	30%	7960	-	0	0	-
Return Fan Load	3783 CFM	0	-	1135 CFM	0	-
Ventilation Load	660 CFM	3743	13166	660 CFM	14787	0
Supply Fan Load	3783 CFM	14083	-	1135 CFM	-1832	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**120262**	**22186**	-	**26726**	**0**
Central Cooling Coil	-	120262	22187	-	0	0
Terminal Reheat Coils	-	0	-	-	26725	-
>> Total Conditioning	-	**120262**	**22187**	-	**26725**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for AHU 2-4

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

Air System Information

Air System Name	AHU 2-4	Number of zones	1
Equipment Class	CW AHU	Floor Area	7984.0 ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	24.6	Tons	Load occurs at	Jul 1500	
Total coil load	295.0	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	165.5	MBH	Entering DB / WB	86.0 / 72.6	°F
Coil CFM at Jul 1500	4454	CFM	Leaving DB / WB	51.5 / 51.2	°F
Max block CFM at Jun 1700	4454	CFM	Coil ADP	49.7	°F
Sum of peak zone CFM	4454	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.561		Resulting RH	54	%
ft²/Ton	324.8		Design supply temp.	55.0	°F
BTU/(hr-ft²)	36.9		Zone T-stat Check	0 of 1	OK
Water flow @ 10.0 °F rise	59.03	gpm	Max zone temperature deviation	1.1	°F

Supply Fan Sizing Data

Actual max CFM at Jun 1700	4454	CFM	Fan motor BHP	6.52	BHP
Standard CFM	4449	CFM	Fan motor kW	4.86	kW
Actual max CFM/ft²	0.56	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	3992	CFM	CFM/person	11.09	CFM/person
CFM/ft²	0.50	CFM/ft²			

Air System Design Load Summary for AHU 2-4

Project Name: Jackson Barracks Spirit — 04/12/2006
Prepared by: L. T. Vivien, Jr. & Associates, Inc. — 03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500 COOLING OA DB / WB 95.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	360 ft²	2080	-	360 ft²	-	-
Wall Transmission	2416 ft²	3698	-	2416 ft²	6139	-
Roof Transmission	700 ft²	466	-	700 ft²	1405	-
Window Transmission	360 ft²	3100	-	360 ft²	7200	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	7760 W	15040	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	360	67423	73800	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**91796**	**73800**	-	**14744**	**0**
Zone Conditioning	-	115731	73800	-	13567	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	1065	-	0	0	-
Plenum Lighting Load	30%	7944	-	0	0	-
Return Fan Load	4454 CFM	0	-	1336 CFM	0	-
Ventilation Load	3992 CFM	24188	55676	1336 CFM	21500	0
Supply Fan Load	4454 CFM	16586	-	1336 CFM	-2156	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**165514**	**129476**	-	**32911**	**0**
Central Cooling Coil	-	165514	129480	-	0	0
Terminal Reheat Coils	-	0	-	-	32907	-
>> Total Conditioning	-	**165514**	**129480**	-	**32907**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for AHU 3-1

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

Air System Information

Air System Name	AHU 3-1	Number of zones	1	
Equipment Class	CW AHU	Floor Area	4534.0	ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	9.0	Tons	Load occurs at	Aug 1500	
Total coil load	108.5	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	86.2	MBH	Entering DB / WB	83.5 / 66.1	°F
Coil CFM at Aug 1500	2481	CFM	Leaving DB / WB	51.7 / 50.9	°F
Max block CFM at Sep 1700	2542	CFM	Coil ADP	50.0	°F
Sum of peak zone CFM	2542	CFM	Bypass Factor	0.060	
Sensible heat ratio	0.785		Resulting RH	42	%
ft²/Ton	501.4		Design supply temp.	55.0	°F
BTU/(hr-ft²)	23.9		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	21.72	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Sep 1700	2542	CFM	Fan motor BHP	3.72	BHP
Standard CFM	2539	CFM	Fan motor kW	2.77	kW
Actual max CFM/ft²	0.56	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	840	CFM	CFM/person	20.00	CFM/person
CFM/ft²	0.19	CFM/ft²			

Air System Design Load Summary for AHU 3-1

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1500 COOLING OA DB / WB 96.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	180 ft²	1618	-	180 ft²	-	-
Wall Transmission	2077 ft²	4378	-	2077 ft²	5278	-
Roof Transmission	3600 ft²	2241	-	3600 ft²	7226	-
Window Transmission	180 ft²	1550	-	180 ft²	3600	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	5386 W	10439	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	8000 W	25000	-	0	0	-
People	42	7866	8610	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**53091**	**8610**	-	**16103**	**0**
Zone Conditioning	-	61239	8610	-	14947	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	5229	-	0	0	-
Plenum Lighting Load	30%	5514	-	0	0	-
Return Fan Load	2481 CFM	0	-	762 CFM	0	-
Ventilation Load	755 CFM	4272	14717	762 CFM	12260	0
Supply Fan Load	2481 CFM	8943	-	762 CFM	-1230	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**86196**	**23327**	-	**25976**	**0**
Central Cooling Coil	-	86196	23325	-	0	0
Terminal Reheat Coils	-	0	-	-	25975	-
>> Total Conditioning	-	**86196**	**23325**	-	**25975**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for AHU 3-2

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

Air System Information

Air System Name	AHU 3-2		Number of zones	1
Equipment Class	CW AHU		Floor Area	5529.0 ft²
Air System Type	VAV		Location	New Orleans IAP, Louisiana

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	10.1	Tons	Load occurs at	Aug 1500	
Total coil load	121.4	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	93.7	MBH	Entering DB / WB	83.7 / 66.4	°F
Coil CFM at Aug 1500	2703	CFM	Leaving DB / WB	51.6 / 50.9	°F
Max block CFM at Sep 1700	2755	CFM	Coil ADP	49.9	°F
Sum of peak zone CFM	2755	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.771		Resulting RH	42	%
ft²/Ton	546.5		Design supply temp.	55.0	°F
BTU/(hr-ft²)	22.0		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	24.29	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Sep 1700	2755	CFM	Fan motor BHP	4.03	BHP
Standard CFM	2752	CFM	Fan motor kW	3.01	kW
Actual max CFM/ft²	0.50	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	1000	CFM	CFM/person	20.00	CFM/person
CFM/ft²	0.18	CFM/ft²			

Air System Design Load Summary for AHU 3-2

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1500 COOLING OA DB / WB 95.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	180 ft²	1618	-	180 ft²	-	-
Wall Transmission	2338 ft²	4914	-	2338 ft²	5941	-
Roof Transmission	3600 ft²	2241	-	3600 ft²	7225	-
Window Transmission	180 ft²	1550	-	180 ft²	3600	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	6568 W	12729	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	8000 W	25000	-	0	0	-
People	50	9364	10250	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**57417**	**10250**	-	**16766**	**0**
Zone Conditioning	-	66813	10250	-	15533	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	5229	-	0	0	-
Plenum Lighting Load	30%	6723	-	0	0	-
Return Fan Load	2703 CFM	0	-	826 CFM	0	-
Ventilation Load	904 CFM	5068	17495	826 CFM	13290	0
Supply Fan Load	2703 CFM	9818	-	826 CFM	-1334	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**93651**	**27745**	-	**27489**	**0**
Central Cooling Coil	-	93651	27743	-	0	0
Terminal Reheat Coils	-	0	-	-	27488	-
>> Total Conditioning	-	**93651**	**27743**	-	**27488**	**0**
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Air System Sizing Summary for AHU 3-3

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

Air System Information

Air System Name	AHU 3-3	Number of zones	1	
Equipment Class	CW AHU	Floor Area	8100.0	ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	11.0	Tons	Load occurs at	Jun 1500	
Total coil load	132.2	MBH	OA DB / WB	94.0 / 80.0	°F
Sensible coil load	104.0	MBH	Entering DB / WB	84.2 / 66.3	°F
Coil CFM at Jun 1500	2959	CFM	Leaving DB / WB	61.6 / 60.8	°F
Max block CFM at Jun 1700	2963	CFM	Coil ADP	49.9	°F
Sum of peak zone CFM	2963	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.787		Resulting RH	41	%
ft²/Ton	735.3		Design supply temp.	55.0	°F
BTU/(hr-ft²)	16.3		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	26.46	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Jun 1700	2963	CFM	Fan motor BHP	4.34	BHP
Standard CFM	2960	CFM	Fan motor kW	3.23	kW
Actual max CFM/ft²	0.37	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	1000	CFM	CFM/person	20.00	CFM/person
CFM/ft²	0.12	CFM/ft²			

Air System Design Load Summary for AHU 3-3

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1600 COOLING OA DB / WB 94.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	180 ft²	1149	-	180 ft²	-	-
Wall Transmission	2338 ft²	3490	-	2338 ft²	5941	-
Roof Transmission	3600 ft²	2355	-	3600 ft²	7225	-
Window Transmission	180 ft²	1460	-	180 ft²	3600	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	9623 W	18649	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	8000 W	25000	-	0	0	-
People	50	9364	10250	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**61467**	**10250**	-	**16766**	**0**
Zone Conditioning	-	73299	10250	-	15377	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	5494	-	0	0	-
Plenum Lighting Load	30%	9850	-	0	0	-
Return Fan Load	2959 CFM	0	-	889 CFM	0	-
Ventilation Load	899 CFM	4346	17960	889 CFM	14301	0
Supply Fan Load	2959 CFM	10998	-	889 CFM	-1434	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**103986**	**28210**	-	**28243**	**0**
Central Cooling Coil	-	103986	28213	-	0	0
Terminal Reheat Coils	-	0	-	-	28242	-
>> Total Conditioning	-	**103986**	**28213**	-	**28242**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for AHU 3-4

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

Air System Information

Air System Name	AHU 3-4	Number of zones	1	
Equipment Class	CW AHU	Floor Area	4534.0	ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	9.0	Tons	Load occurs at	Aug 1500	
Total coil load	108.3	MBH	OA DB / WB	95.0 / 80.0	°F
Sensible coil load	85.0	MBH	Entering DB / WB	83.5 / 66.1	°F
Coil CFM at Aug 1500	2481	CFM	Leaving DB / WB	51.7 / 51.0	°F
Max block CFM at Sep 1700	2561	CFM	Coil ADP	50.0	°F
Sum of peak zone CFM	2561	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.786		Resulting RH	42	%
ft²/Ton	502.3		Design supply temp.	55.0	°F
BTU/(hr-ft²)	23.9		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	21.68	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Sep 1700	2561	CFM	Fan motor BHP	3.75	BHP
Standard CFM	2558	CFM	Fan motor kW	2.79	kW
Actual max CFM/ft²	0.66	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	840	CFM	CFM/person	20.00	CFM/person
CFM/ft²	0.19	CFM/ft²			

Air System Design Load Summary for AHU 3-4

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1500 COOLING OA DB / WB 95.0 °F / 80.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	180 ft²	1618	-	180 ft²	-	-
Wall Transmission	2077 ft²	4133	-	2077 ft²	5278	-
Roof Transmission	3600 ft²	2241	-	3600 ft²	7225	-
Window Transmission	180 ft²	1550	-	180 ft²	3600	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	5386 W	10439	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	8000 W	25000	-	0	0	-
People	42	7886	8610	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**52846**	**8610**	-	**16103**	**0**
Zone Conditioning	-	61139	8610	-	14947	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	6229	-	0	0	-
Plenum Lighting Load	30%	5514	-	0	0	-
Return Fan Load	2481 CFM	0	-	768 CFM	0	-
Ventilation Load	755 CFM	4284	14701	768 CFM	12354	0
Supply Fan Load	2481 CFM	8848	-	768 CFM	-1240	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**86013**	**23311**	-	**26061**	**0**
Central Cooling Coil	-	86013	23311	-	0	0
Terminal Reheat Coils	-	0	-	-	26059	-
>> Total Conditioning	-	**86013**	**23311**	-	**26059**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for AHU 4-1

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

Air System Information

Air System Name	AHU 4-1	Number of zones	1	
Equipment Class	CW AHU	Floor Area	5600.0	ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	7.6	Tons	Load occurs at	Aug 1600	
Total coil load	90.0	MBH	OA DB / WB	94.5 / 79.9	°F
Sensible coil load	75.4	MBH	Entering DB / WB	85.9 / 66.1	°F
Coil CFM at Aug 1600	2043	CFM	Leaving DB / WB	51.7 / 50.8	°F
Max block CFM at Sep 1700	2083	CFM	Coil ADP	49.9	°F
Sum of peak zone CFM	2083	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.838		Resulting RH	40	%
ft²/Ton	746.7		Design supply temp.	55.0	°F
BTU/(hr-ft²)	16.1		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	18.01	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Sep 1700	2083	CFM	Fan motor BHP	3.05	BHP
Standard CFM	2081	CFM	Fan motor kW	2.27	kW
Actual max CFM/ft²	0.37	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	520	CFM	CFM/person	20.00	CFM/person
CFM/ft²	0.09	CFM/ft²			

Air System Design Load Summary for AHU 4-1

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1600 COOLING OA DB / WB 94.5 °F / 79.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	130 ft²	1057	-	130 ft²	-	-
Wall Transmission	3344 ft²	7270	-	3344 ft²	8497	-
Roof Transmission	5600 ft²	3793	-	5600 ft²	11239	-
Window Transmission	130 ft²	1111	-	130 ft²	2600	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	6653 W	13090	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	4000 W	12575	-	0	0	-
People	26	4968	5330	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**43863**	**5330**	-	**22336**	**0**
Zone Conditioning	-	50453	5330	-	20807	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	8849	-	0	0	-
Plenum Lighting Load	30%	6810	-	0	0	-
Return Fan Load	2043 CFM	0	-	625 CFM	0	-
Ventilation Load	464 CFM	1906	9243	520 CFM	8391	0
Supply Fan Load	2043 CFM	7412	-	625 CFM	-1009	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**75431**	**14573**	-	**28190**	**0**
Central Cooling Coil	-	75431	14571	-	0	0
Terminal Reheat Coils	-	0	-	-	28183	-
>> Total Conditioning	-	**75431**	**14571**	-	**28183**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for AHU 4-2

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

Air System Information

Air System Name	AHU 4-2	Number of zones	1	
Equipment Class	CW AHU	Floor Area	5600.0	ft²
Air System Type	VAV	Location	New Orleans IAP, Louisiana	

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	Peak zone sensible load	Calculation Months	Jan to Dec
Space CFM	Individual peak space loads	Sizing Data	Calculated

Central Cooling Coil Sizing Data

Total coil load	9.3	Tons	Load occurs at	Jul 1600	
Total coil load	111.7	MBH	OA DB / WB	94.6 / 79.9	°F
Sensible coil load	83.6	MBH	Entering DB / WB	86.3 / 67.9	°F
Coil CFM at Jul 1600	2231	CFM	Leaving DB / WB	51.6 / 50.8	°F
Max block CFM at Jun 1700	2240	CFM	Coil ADP	49.8	°F
Sum of peak zone CFM	2240	CFM	Bypass Factor	0.050	
Sensible heat ratio	0.748		Resulting RH	43	%
ft²/Ton	601.6		Design supply temp.	55.0	°F
BTU/(hr-ft²)	19.9		Zone T-stat Check	1 of 1	OK
Water flow @ 10.0 °F rise	22.35	gpm	Max zone temperature deviation	0.0	°F

Supply Fan Sizing Data

Actual max CFM at Jun 1700	2240	CFM	Fan motor BHP	3.28	BHP
Standard CFM	2237	CFM	Fan motor kW	2.44	kW
Actual max CFM/ft²	0.40	CFM/ft²	Fan static	4.00	in wg

Outdoor Ventilation Air Data

Design airflow CFM	1000	CFM	CFM/person	20.00	CFM/person
CFM/ft²	0.18	CFM/ft²			

Air System Design Load Summary for AHU 4-2

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
03:05PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1600 COOLING OA DB / WB 94.5 °F / 79.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 30.0 °F / 25.3 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	130 ft²	781	-	130 ft²	-	-
Wall Transmission	3344 ft²	6159	-	3344 ft²	8497	-
Roof Transmission	5600 ft²	3966	-	5600 ft²	11239	-
Window Transmission	130 ft²	1111	-	130 ft²	2600	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	6653 W	13090	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	4000 W	12575	-	0	0	-
People	50	9554	10250	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	**47237**	**10250**	-	**22336**	**0**
Zone Conditioning	-	55287	10250	-	20726	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	70%	9255	-	0	0	-
Plenum Lighting Load	30%	6810	-	0	0	-
Return Fan Load	2231 CFM	0	-	672 CFM	0	-
Ventilation Load	936 CFM	3989	17847	672 CFM	10800	0
Supply Fan Load	2231 CFM	8269	-	672 CFM	-1084	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	**83610**	**28097**	-	**30442**	**0**
Central Cooling Coil	-	83610	28095	-	0	0
Terminal Reheat Coils	-	0	-	-	30442	-
>> Total Conditioning	-	**83610**	**28095**	-	**30442**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Monthly Simulation Results for AHU 1-1

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Central Heating Coil Load (kBTU)	Central Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	3500	5	2	424	26	2507	516
February	3026	0	0	383	20	2160	448
March	6427	0	0	424	7	2289	471
April	11723	0	0	411	134	2398	493
May	16066	0	0	424	273	2398	493
June	17366	0	0	411	297	2289	471
July	20569	0	0	424	341	2507	516
August	19667	0	0	424	341	2289	471
September	15696	0	0	411	237	2398	493
October	14618	0	0	424	209	2507	516
November	5986	0	0	411	55	2160	448
December	3362	0	0	424	63	2507	516
Total	138007	5	2	4996	2002	28452	5852

Monthly Simulation Results for AHU 1-2

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	15225	386	113	553	45	1946	516
February	7250	59	17	460	57	1692	448
March	17186	13	4	605	34	1777	471
April	34087	0	0	798	153	1861	493
May	51162	0	0	979	280	1861	493
June	53282	0	0	954	294	1777	471
July	68013	0	0	1119	341	1946	516
August	60970	0	0	1040	340	1777	471
September	49190	0	0	874	249	1861	493
October	44742	0	0	856	218	1946	516
November	16200	50	15	544	79	1692	448
December	13885	51	15	487	115	1946	516
Total	**431193**	**559**	**164**	**9269**	**2205**	**22084**	**5852**

Monthly Simulation Results for AHU 1-3

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	11701	0	0	392	52	2405	1289
February	7293	0	0	332	44	2091	1121
March	13563	0	0	397	54	2196	1177
April	21160	0	0	480	162	2300	1233
May	27635	0	0	551	296	2300	1233
June	28081	0	0	528	300	2196	1177
July	34405	0	0	620	341	2405	1289
August	31928	0	0	604	341	2196	1177
September	27943	0	0	548	251	2300	1233
October	27577	0	0	598	235	2405	1289
November	13685	0	0	406	83	2091	1121
December	10506	0	0	361	108	2405	1289
Total	255477	0	0	5817	2268	27289	14629

Monthly Simulation Results for AHU 1-4

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Central Heating Coil Load (kBTU)	Central Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	2980	0	0	136	33	579	516
February	2424	0	0	123	17	504	448
March	3431	0	0	136	25	529	471
April	4853	0	0	131	145	554	493
May	5664	0	0	136	285	554	493
June	5736	0	0	131	294	529	471
July	6662	0	0	136	341	579	516
August	6189	0	0	136	341	529	471
September	5419	0	0	131	240	554	493
October	5259	0	0	136	225	579	516
November	3165	0	0	131	59	504	448
December	2864	0	0	136	62	579	516
Total	54445	0	0	1600	2067	6571	5852

Monthly Simulation Results for AHU 1-5

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Central Heating Coil Load (kBTU)	Central Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	10219	648	190	1667	91	2511	516
February	12215	8	2	1506	43	2183	448
March	19336	102	30	1667	43	2292	471
April	34716	0	0	1613	134	2402	493
May	43055	0	0	1667	267	2402	493
June	56634	0	0	1614	310	2292	471
July	59871	0	0	1667	341	2511	516
August	63013	0	0	1668	334	2292	471
September	44103	0	0	1613	235	2402	493
October	35958	0	0	1667	196	2511	516
November	19421	49	14	1613	97	2183	448
December	14892	71	21	1667	68	2511	516
Total	**413432**	**879**	**258**	**19629**	**2160**	**28492**	**5852**

Monthly Simulation Results for AHU 2-1

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Central Heating Coil Load (kBTU)	Central Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	1448	0	0	35	33	401	0
February	1142	0	0	32	22	349	0
March	1438	0	0	35	22	366	0
April	1687	0	0	34	149	384	0
May	1943	0	0	35	279	384	0
June	1878	0	0	34	297	366	0
July	2158	0	0	35	341	401	0
August	2020	0	0	35	341	366	0
September	1884	0	0	34	240	384	0
October	1915	0	0	35	226	401	0
November	1392	0	0	34	56	349	0
December	1365	0	0	35	66	401	0
Total	20269	0	0	412	2072	4550	0

Monthly Simulation Results for AHU 2-2

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	7031	0	0	165	100	1561	258
February	7721	0	0	167	16	1357	224
March	9876	0	0	208	68	1425	235
April	14217	0	0	217	188	1493	247
May	16286	0	0	239	289	1493	247
June	19875	0	0	265	312	1425	235
July	20924	0	0	270	341	1561	258
August	22273	0	0	293	340	1425	235
September	17222	0	0	257	258	1493	247
October	16007	0	0	263	236	1561	258
November	10373	0	0	208	102	1357	224
December	9250	0	0	178	74	1561	258
Total	**170855**	**0**	**0**	**2731**	**2324**	**17712**	**2926**

Monthly Simulation Results for AHU 2-3

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	18127	117	34	514	62	2005	3867
February	14462	10	3	432	36	1743	3363
March	19824	2	1	535	85	1831	3531
April	25576	0	0	666	206	1918	3699
May	29946	0	0	779	305	1918	3699
June	29869	0	0	759	310	1831	3531
July	34478	0	0	876	341	2005	3867
August	31973	0	0	812	341	1831	3531
September	28821	0	0	714	269	1918	3699
October	28293	0	0	715	255	2005	3867
November	18583	8	2	498	100	1743	3363
December	16699	7	2	466	93	2005	3867
Total	**296651**	**144**	**42**	**7766**	**2403**	**22751**	**43887**

Monthly Simulation Results for AHU 2-4

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	18162	0	0	789	32	2001	0
February	8906	0	0	666	54	1740	0
March	19803	0	0	792	28	1827	0
April	36714	0	0	940	148	1914	0
May	53109	0	0	1063	264	1914	0
June	54132	0	0	1002	284	1827	0
July	67963	0	0	1136	341	2001	0
August	61370	0	0	1072	334	1827	0
September	51054	0	0	969	246	1914	0
October	48086	0	0	1014	215	2001	0
November	19150	0	0	748	72	1740	0
December	16456	0	0	718	101	2001	0
Total	**454905**	**0**	**0**	**10910**	**2118**	**22706**	**0**

Monthly Simulation Results for AHU 3-1

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	10085	20	6	318	67	1389	2063
February	7478	0	0	270	45	1208	1794
March	11990	0	0	329	76	1268	1883
April	17127	0	0	410	188	1328	1973
May	21129	0	0	477	301	1328	1973
June	21338	0	0	458	307	1268	1883
July	25289	0	0	535	341	1389	2063
August	23664	0	0	514	341	1268	1883
September	20956	0	0	462	259	1328	1973
October	20699	0	0	492	246	1389	2063
November	11541	0	0	327	97	1208	1794
December	9091	0	0	291	102	1389	2063
Total	**200387**	**20**	**6**	**4884**	**2369**	**15760**	**23406**

Monthly Simulation Results for AHU 3-2

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	11008	1	0	351	67	1694	2063
February	8010	0	0	298	45	1473	1794
March	13077	0	0	362	69	1546	1883
April	18889	0	0	449	178	1620	1973
May	23490	0	0	522	301	1620	1973
June	23722	0	0	500	308	1546	1883
July	28225	0	0	583	341	1694	2063
August	26386	0	0	562	341	1546	1883
September	23320	0	0	506	258	1620	1973
October	23008	0	0	539	243	1694	2063
November	12638	0	0	360	90	1473	1794
December	9904	0	0	321	102	1694	2063
Total	**221676**	**1**	**0**	**5353**	**2341**	**19218**	**23408**

Monthly Simulation Results for AHU 3-3

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	11898	0	0	355	63	2481	2063
February	8824	0	0	301	44	2157	1794
March	14388	0	0	383	66	2265	1883
April	20810	0	0	487	172	2373	1973
May	26098	0	0	590	298	2373	1973
June	26385	0	0	572	305	2265	1883
July	30995	0	0	658	341	2481	2063
August	28715	0	0	617	341	2265	1883
September	24935	0	0	529	253	2373	1973
October	23889	0	0	528	239	2481	2063
November	13306	0	0	354	88	2157	1794
December	10662	0	0	319	101	2481	2063
Total	**240903**	**0**	**0**	**5693**	**2309**	**28154**	**23406**

Monthly Simulation Results for AHU 3-4

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	10093	22	6	317	67	1389	2063
February	7467	0	0	268	45	1208	1794
March	11968	0	0	327	77	1268	1883
April	17108	0	0	407	188	1328	1973
May	21097	0	0	472	301	1328	1973
June	21309	0	0	454	306	1268	1883
July	25210	0	0	528	341	1389	2063
August	23618	0	0	509	341	1268	1883
September	20925	0	0	458	260	1328	1973
October	20711	0	0	489	246	1389	2063
November	11569	0	0	326	97	1208	1794
December	9110	0	0	291	102	1389	2063
Total	**200185**	**22**	**7**	**4846**	**2371**	**15760**	**23406**

Monthly Simulation Results for AHU 4-1

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	5709	92	27	156	70	1715	1031
February	4331	0	0	132	41	1492	897
March	8199	0	0	183	59	1566	942
April	12932	0	0	261	172	1641	986
May	16848	0	0	344	295	1641	986
June	17366	0	0	342	302	1566	942
July	20419	0	0	408	341	1715	1031
August	19402	0	0	398	341	1566	942
September	16263	0	0	322	257	1641	986
October	15638	0	0	325	240	1715	1031
November	7590	0	0	177	93	1492	897
December	5123	0	0	140	112	1715	1031
Total	**149819**	**92**	**27**	**3187**	**2323**	**19465**	**11703**

Monthly Simulation Results for AHU 4-2

Project Name: Jackson Barracks Spirit
Prepared by: L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:33PM

Air System Simulation Results (Table 1) :

Month	Central Cooling Coil Load (kBTU)	Terminal Heating Coil Load (kBTU)	Terminal Heating Coil Input (kWh)	Supply Fan (kWh)	Vent. Reclaim Device (kWh)	Lighting (kWh)	Electric Equipment (kWh)
January	5301	171	50	169	66	1715	1031
February	3247	3	1	141	55	1492	897
March	7727	0	0	202	49	1566	942
April	14277	0	0	295	161	1641	986
May	20065	0	0	399	291	1641	986
June	20951	0	0	401	299	1566	942
July	25226	0	0	472	341	1715	1031
August	23262	0	0	441	341	1566	942
September	18829	0	0	346	244	1641	986
October	17158	0	0	324	230	1715	1031
November	6817	0	0	180	87	1492	897
December	4931	3	1	149	134	1715	1031
Total	167791	177	52	3519	2299	19485	11703

1. General Details:

Plant Name ..... CENTRAL PLANT
Plant Type ..... Chiller Plant

2. Air Systems served by Plant:

Air System Name	Mult.
AHU 1-1	1
AHU 1-2	1
AHU 1-3	1
AHU 1-4	1
AHU 2-1	1
AHU 2-2	1
AHU 2-3	1
AHU 2-4	1
AHU 3-1	1
AHU 3-2	1
AHU 3-3	1
AHU 1-5	1
AHU 3-4	1
AHU 4-1	1
AHU 4-2	1

3: Configuration

Number of Chillers 3
Plant Control ..... Sequenced with Part Load Chiller: High + Low Loads
Design LCHWT ..... 42.0 °F
Maximum LCHWT ..... 45.0 °F
Cooling Tower Configuration ..... One tower for each W/C chiller

4: Schedule of Equipment

Sequence	Chiller Name	Full Load Capacity (Tons)	Cooler Flow Rate (gpm)	Condenser Flow Rate (gpm)	Cooling Tower Name	Tower Flow Rate (gpm)
CH-1	Sample Chiller	300.0	720.0	900.0	Sample Cooling Tower	900.0
CH-2	Sample Chiller	300.0	720.0	900.0	Sample Cooling Tower	900.0
Part-Load	Sample Chiller	300.0	720.0	900.0	Sample Cooling Tower	900.0
	Totals:	900.0	2160.0	2700.0	Totals:	2700.0

Est. Max Load ..... 202.3 Tons

5: Distribution

Distribution System

Type ..... Primary/Secondary, Variable Speed Secondary
Coil Delta-T at Design ..... 14.0 °F
Pipe Heat Gain Factor ..... 0.0 %

Fluid Properties

Name ..... Fresh Water
Density ..... 62.4 lb/ft³
Specific Heat ..... 1.00 BTU / (lb - °F)

Primary Loop

Pump for	Flow (gpm)	Head (ft wg)	Mechanical Efficiency (%)	Electrical Efficiency (%)
CH-1	720.0	30.0	80.0	94.0
CH-2	720.0	30.0	80.0	94.0
Part-Load	720.0	30.0	80.0	94.0

Secondary Loop

	Flow (gpm)	Head (ft wg)	Mechanical Efficiency (%)	Electrical Efficiency (%)
Design	2160.0	100.0	80.0	94.0

Control Head ..... 15.0 ft wg
Minimum Pump Flow ..... 30.0 %

Cooling Plant Sizing Summary for CENTRAL PLANT

Jackson Barracks Spirit
L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:34PM

1. Plant Information:

Plant Name ..... CENTRAL PLANT
Plant Type ..... Chiller Plant
Design Weather ..... New Orleans IAP, Louisiana

2. Cooling Plant Sizing Data:

Maximum Plant Load ..... 202.3 Tons
Load occurs at ..... Aug 1500
ft²/Ton ..... 442.4 ft²/Ton
Floor area served by plant ..... 89486.0 ft²

3. Coincident Air System Cooling Loads for Aug 1500

Air System Name	Mult.	System Cooling Coil Load (Tons)
AHU 1-1	1	7.2
AHU 1-2	1	25.6
AHU 1-3	1	12.9
AHU 1-4	1	2.3
AHU 2-1	1	0.7
AHU 2-2	1	17.0
AHU 2-3	1	11.6
AHU 2-4	1	24.5
AHU 3-1	1	9.0
AHU 3-2	1	10.1
AHU 3-3	1	10.8
AHU 1-5	1	44.9
AHU 3-4	1	9.0
AHU 4-1	1	7.5
AHU 4-2	1	9.1

System loads are for coils whose cooling source is ' Chilled Water ' .

Monthly Simulation Results for CENTRAL PLANT

Jackson Barracks Spirit
L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:34PM

Plant Simulation Results (Table 1) :

Month	Cooling Coil Load (kBTU)	Plant Load (kBTU)	Chiller Output (kBTU)	Chiller Input (kWh)	Primary Chilled Water Pump (kWh)	Secondary Chilled Water Pump (kWh)	Condenser Water Pump (kWh)
January	142488	152878	152878	5946	1844	3159	1649
February	103796	113181	113181	4445	1666	2854	1389
March	178031	188421	188421	7359	1844	3159	2137
April	285678	295733	295733	11653	1785	3057	2754
May	373595	384015	384015	14933	1849	3169	2903
June	397922	408098	408098	16249	1806	3095	2972
July	470409	480951	480951	19296	1871	3206	3077
August	444448	454960	454960	18201	1866	3196	3077
September	366560	376646	376646	15060	1790	3067	2853
October	343556	353946	353946	13914	1844	3159	2860
November	171413	181468	181468	7275	1785	3057	2033
December	138101	148491	148491	5913	1844	3159	1605
Total	3415995	3538788	3538788	140243	21793	37339	29308

Plant Simulation Results (Table 2) :

Month	Cooling Tower Fan (kWh)
January	4528
February	2800
March	5650
April	9741
May	11286
June	11826
July	12244
August	12244
September	11164
October	10566
November	5540
December	4439
Total	102029

141 ST READINESS CENTER Input Data

1. General Details:

Building Name ..... 141 ST READINESS CENTER

2. Plants Included in this Building:

Plant Name
CENTRAL PLANT

3. Air Systems Included in this Building:

System Name	Mult.
AHU 1-1	1
AHU 1-2	1
AHU 1-3	1
AHU 1-4	1
AHU 2-1	1
AHU 2-2	1
AHU 2-3	1
AHU 2-4	1
AHU 3-1	1
AHU 3-2	1
AHU 3-3	1
AHU 1-5	1
AHU 3-4	1
AHU 4-1	1
AHU 4-2	1

4: Miscellaneous Energy

Name	Energy/Fuel Type	Peak use	Schedule
DOMESTIC HOT WATER	Natural Gas	2000.0 MBH	DRILL

5: Meters

Electric ..... Electric Rate
Natural Gas ..... Fuel Rate

6: Miscellaneous Data

Average Building Power Factor ..... 100.00 %
Source Electric Generating Efficiency ..... 28.00 %
Additional Floor Area ..... 12000.0 ft²

Annual Cost Summary

Table 1. Annual Costs

Component	141 ST READINESS CENTER ($)
Air System Fans	9,939
Cooling	11,219
Heating	45
Pumps	7,075
Cooling Tower Fans	8,162
HVAC Sub-Total	**36,441**
Lights	23,874
Electric Equipment	16,150
Misc. Electric	0
Misc. Fuel Use	9,984
Non-HVAC Sub-Total	**50,009**
Grand Total	**86,450**

Table 2. Annual Cost per Unit Floor Area

Component	141 ST READINESS CENTER ($/ft²)
Air System Fans	0.098
Cooling	0.111
Heating	0.000
Pumps	0.070
Cooling Tower Fans	0.080
HVAC Sub-Total	**0.359**
Lights	0.235
Electric Equipment	0.159
Misc. Electric	0.000
Misc. Fuel Use	0.098
Non-HVAC Sub-Total	**0.493**
Grand Total	**0.852**
Gross Floor Area (ft²)	101486.0
Conditioned Floor Area (ft²)	89486.0

Note: Values in this table are calculated using the Gross Floor Area.

Table 3. Component Cost as a Percentage of Total Cost

Component	141 ST READINESS CENTER (%)
Air System Fans	11.5
Cooling	13.0
Heating	0.1
Pumps	8.2
Cooling Tower Fans	9.4
HVAC Sub-Total	**42.2**
Lights	27.6
Electric Equipment	18.7
Misc. Electric	0.0
Misc. Fuel Use	11.5
Non-HVAC Sub-Total	**57.8**
Grand Total	**100.0**

Table 1. Annual Costs

Component	141 ST READINESS CENTER ($)
HVAC Components	
Electric	36,441
Natural Gas	0
Fuel Oil	0
Propane	0
Remote HW	0
Remote Steam	0
Remote CW	0
HVAC Sub-Total	**36,441**
Non-HVAC Components	
Electric	40,025
Natural Gas	9,984
Fuel Oil	0
Propane	0
Remote HW	0
Remote Steam	0
Non-HVAC Sub-Total	**50,009**
Grand Total	**86,450**

Table 2. Annual Energy Consumption

Component	141 ST READINESS CENTER
HVAC Components	
Electric (kWh)	455,510
Natural Gas (Therm)	0
Fuel Oil (na)	0
Propane (na)	0
Remote HW (na)	0
Remote Steam (na)	0
Remote CW (na)	0
Non-HVAC Components	
Electric (kWh)	500,311
Natural Gas (Therm)	24,960
Fuel Oil (na)	0
Propane (na)	0
Remote HW (na)	0
Remote Steam (na)	0
Totals	
Electric (kWh)	955,821
Natural Gas (Therm)	24,960
Fuel Oil (na)	0
Propane (na)	0
Remote HW (na)	0
Remote Steam (na)	0
Remote CW (na)	0

Table 3. Annual Emissions

Component	141 ST READINESS CENTER
CO2 (lb)	0
SO2 (kg)	0
NOx (kg)	0

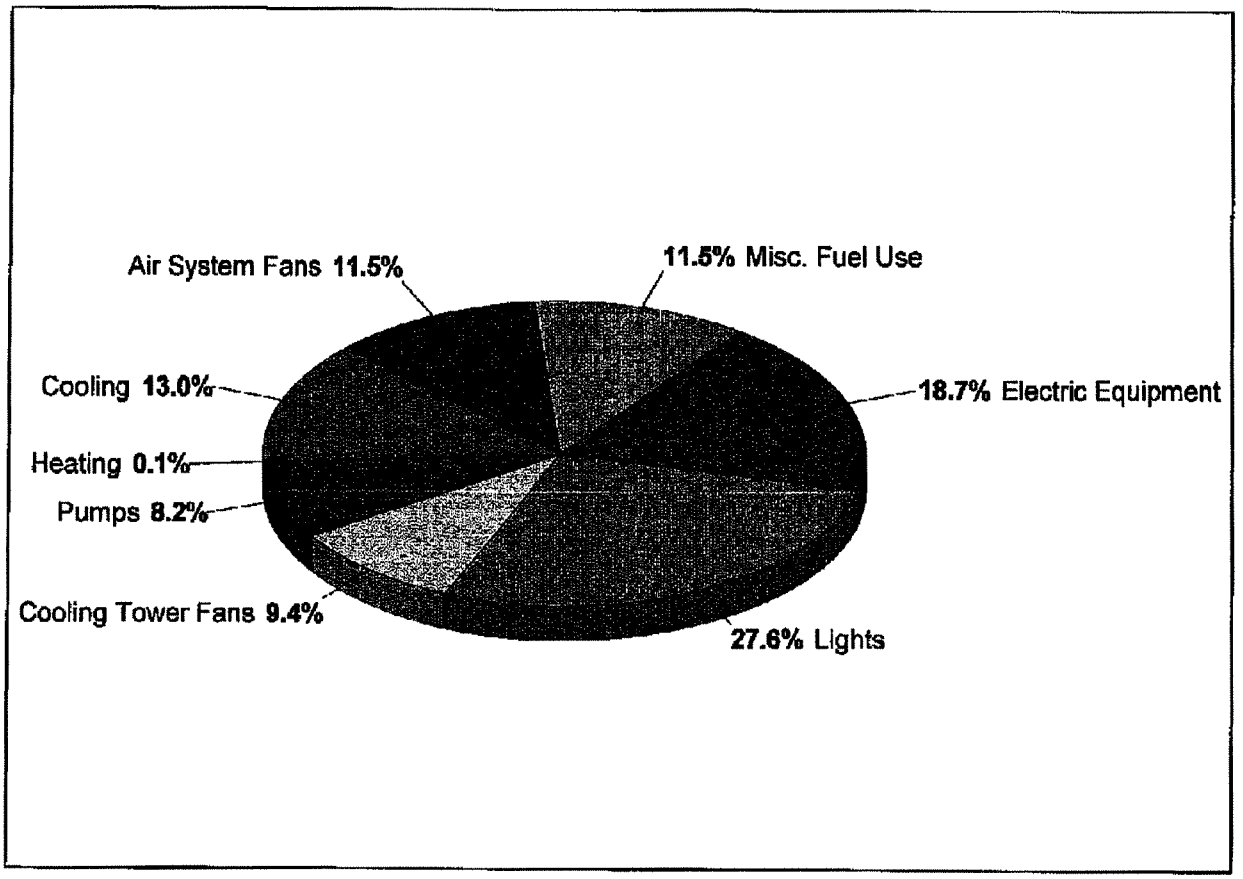
Table 4. Annual Cost per Unit Floor Area

Component	141 ST READINESS CENTER ($/ft²)
HVAC Components	
Electric	0.359
Natural Gas	0.000
Fuel Oil	0.000
Propane	0.000
Remote HW	0.000
Remote Steam	0.000
Remote CW	0.000
HVAC Sub-Total	**0.359**
Non-HVAC Components	
Electric	0.394
Natural Gas	0.098
Fuel Oil	0.000
Propane	0.000
Remote HW	0.000
Remote Steam	0.000
Non-HVAC Sub-Total	**0.493**
Grand Total	**0.852**
Gross Floor Area (ft²)	101486.0
Conditioned Floor Area (ft²)	89486.0

Note: Values in this table are calculated using the Gross Floor Area.

Table 5. Component Cost as a Percentage of Total Cost

Component	141 ST READINESS CENTER (%)
HVAC Components	
Electric	42.2
Natural Gas	0.0
Fuel Oil	0.0
Propane	0.0
Remote HW	0.0
Remote Steam	0.0
Remote CW	0.0
HVAC Sub-Total	**42.2**
Non-HVAC Components	
Electric	46.3
Natural Gas	11.5
Fuel Oil	0.0
Propane	0.0
Remote HW	0.0
Remote Steam	0.0
Non-HVAC Sub-Total	**57.8**
Grand Total	**100.0**



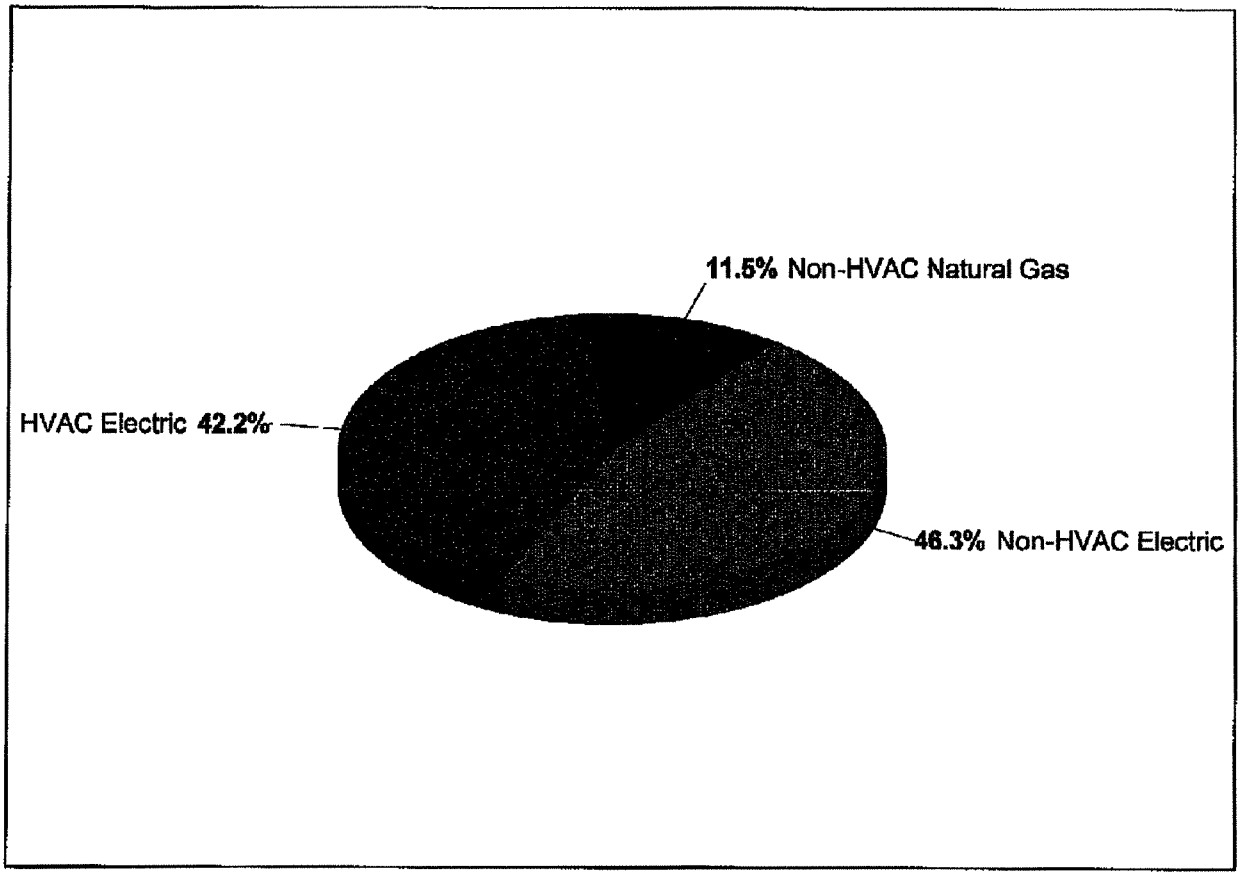
1. Annual Costs

Component	Annual Cost ($)	($/ft²)	Percent of Total (%)
Air System Fans	9,939	0.098	11.5
Cooling	11,219	0.111	13.0
Heating	45	0.000	0.1
Pumps	7,075	0.070	8.2
Cooling Tower Fans	8,162	0.080	9.4
HVAC Sub-Total	**36,441**	**0.359**	**42.2**
Lights	23,874	0.235	27.6
Electric Equipment	16,150	0.159	18.7
Misc. Electric	0	0.000	0.0
Misc. Fuel Use	9,984	0.098	11.5
Non-HVAC Sub-Total	**50,009**	**0.493**	**57.8**
Grand Total	**86,450**	**0.852**	**100.0**

Note: Cost per unit floor area is based on the gross building floor area.

Gross Floor Area ..... **101486.0** ft²
Conditioned Floor Area ..... **89486.0** ft²

Annual Energy Costs - 141 ST READINESS CENTER



1. Annual Costs

Component	Annual Cost ($/yr)	($/ft²)	Percent of Total (%)
HVAC Components			
Electric	36,441	0.359	42.2
Natural Gas	0	0.000	0.0
Fuel Oil	0	0.000	0.0
Propane	0	0.000	0.0
Remote Hot Water	0	0.000	0.0
Remote Steam	0	0.000	0.0
Remote Chilled Water	0	0.000	0.0
HVAC Sub-Total	**36,441**	**0.359**	**42.2**
Non-HVAC Components			
Electric	40,025	0.394	46.3
Natural Gas	9,984	0.098	11.5
Fuel Oil	0	0.000	0.0
Propane	0	0.000	0.0
Remote Hot Water	0	0.000	0.0
Remote Steam	0	0.000	0.0
Non-HVAC Sub-Total	**50,009**	**0.493**	**57.8**
Grand Total	**86,450**	**0.852**	**100.0**

Note: Cost per unit floor area is based on the gross building floor area.

Gross Floor Area ..... **101486.0** ft²
Conditioned Floor Area ..... **89486.0** ft²

Energy Budget by System Component - 141 ST READINESS CENTER

Jackson Barracks Spirit
L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
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1. Annual Coil Loads

Component	Load (kBTU)	(kBTU/ft²)
Cooling Coil Loads	3,415,996	33.660
Heating Coil Loads	1,900	0.019
Grand Total	**3,417,896**	**33.679**

2. Energy Consumption by System Component

Component	Site Energy (kBTU)	Site Energy (kBTU/ft²)	Source Energy (kBTU)	Source Energy (kBTU/ft²)
Air System Fans	423,912	4.177	1,513,972	14.918
Cooling	478,609	4.715	1,708,982	16.839
Heating	1,900	0.019	6,784	0.067
Pumps	301,753	2.973	1,077,691	10.619
Cooling Towers	348,121	3.430	1,243,290	12.251
HVAC Sub-Total	**1,554,196**	**15.314**	**5,550,700**	**54.694**
Lights	1,018,243	10.033	3,636,581	35.833
Electric Equipment	688,816	6.787	2,460,059	24.240
Misc. Electric	0	0.000	0	0.000
Misc. Fuel Use	2,496,000	24.595	2,496,000	24.595
Non-HVAC Sub-Total	**4,203,059**	**41.415**	**8,592,639**	**84.668**
Grand Total	**5,757,255**	**56.730**	**14,143,339**	**139.363**

Notes:
1. 'Cooling Coil Loads' is the sum of all air system cooling coil loads.
2. 'Heating Coil Loads' is the sum of all air system heating coil loads.
3. Site Energy is the actual energy consumed.
4. Source Energy is the site energy divided by the electric generating efficiency (28.0%).
5. Source Energy for fuels equals the site energy value.
6. Energy per unit floor area is based on the gross building floor area.
   Gross Floor Area ..... **101486.0** ft²
   Conditioned Floor Area ..... **89486.0** ft²

Energy Budget by Energy Source - 141 ST READINESS CENTER

Jackson Barracks Spirit
L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:34PM

1. Annual Coil Loads

Component	Load (kBTU)	(kBTU/ft²)
Cooling Coil Loads	3,415,996	33.660
Heating Coil Loads	1,900	0.019
Grand Total	**3,417,896**	**33.679**

2. Energy Consumption by Energy Source

Component	Site Energy (kBTU)	Site Energy (kBTU/ft²)	Source Energy (kBTU)	Source Energy (kBTU/ft²)
HVAC Components				
Electric	1,564,201	15.314	5,550,718	54.694
Natural Gas	0	0.000	0	0.000
Fuel Oil	0	0.000	0	0.000
Propane	0	0.000	0	0.000
Remote Hot Water	0	0.000	0	0.000
Remote Steam	0	0.000	0	0.000
Remote Chilled Water	0	0.000	0	0.000
HVAC Sub-Total	**1,554,201**	**15.314**	**5,550,718**	**54.694**
Non-HVAC Components				
Electric	1,707,060	16.821	6,096,842	60.074
Natural Gas	2,496,000	24.595	2,496,000	24.595
Fuel Oil	0	0.000	0	0.000
Propane	0	0.000	0	0.000
Remote Hot Water	0	0.000	0	0.000
Remote Steam	0	0.000	0	0.000
Non-HVAC Sub-Total	**4,203,060**	**41.415**	**8,592,642**	**84.668**
Grand Total	**5,757,261**	**56.730**	**14,143,360**	**139.363**

Notes:
1. 'Cooling Coil Loads' is the sum of all air system cooling coil loads.
2. 'Heating Coil Loads' is the sum of all air system heating coil loads.
3. Site Energy is the actual energy consumed.
4. Source Energy is the site energy divided by the electric generating efficiency (28.0%).
5. Source Energy for fuels equals the site energy value.
6. Energy per unit floor area is based on the gross building floor area.
   Gross Floor Area ..... 101486.0 ft²
   Conditioned Floor Area ..... 89486.0 ft²

Monthly Component Costs - 141 ST READINESS CENTER

Jackson Barracks Spirit
L. T. Vivien, Jr. & Associates, Inc.

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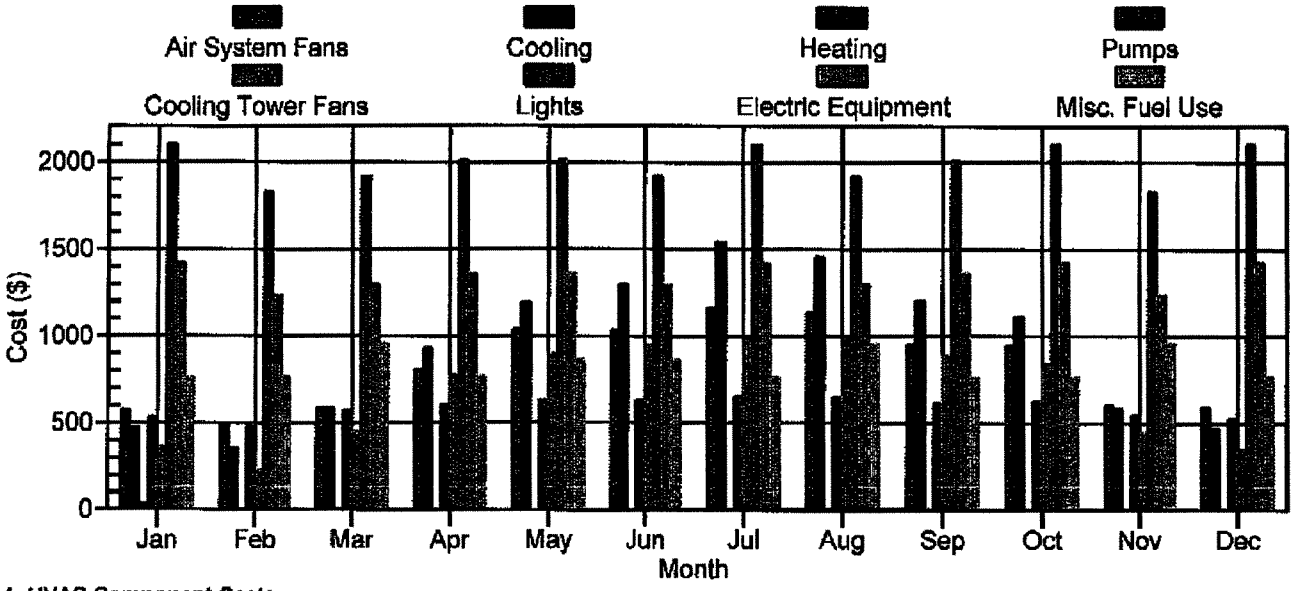

1. HVAC Component Costs

Month	Air System Fans ($)	Cooling ($)	Heating ($)	Pumps ($)	Cooling Towers ($)	HVAC Total ($)
January	577	476	34	532	362	1,981
February	488	366	2	473	224	1,543
March	588	589	3	571	452	2,203
April	806	932	0	608	779	3,125
May	1,040	1,195	0	634	903	3,772
June	1,036	1,300	0	630	946	3,912
July	1,167	1,544	0	652	980	4,343
August	1,138	1,456	0	651	980	4,225
September	954	1,205	0	617	893	3,669
October	949	1,113	0	629	845	3,536
November	606	582	2	550	443	2,183
December	591	473	3	529	355	1,951
Total	**9,939**	**11,219**	**45**	**7,075**	**8,162**	**36,441**

2. Non-HVAC Component Costs

Month	Lights ($)	Electric Equipment ($)	Misc. Electric ($)	Misc. Fuel Use ($)	Non-HVAC Total ($)	Grand Total ($)
January	2,104	1,423	0	768	4,295	6,276
February	1,829	1,238	0	768	3,835	5,378
March	1,921	1,299	0	960	4,180	6,383
April	2,012	1,361	0	768	4,142	7,267
May	2,012	1,361	0	864	4,238	8,010
June	1,921	1,299	0	864	4,084	7,996
July	2,104	1,423	0	768	4,295	8,638
August	1,921	1,299	0	960	4,180	8,405
September	2,012	1,361	0	768	4,142	7,811
October	2,104	1,423	0	768	4,295	7,831
November	1,829	1,238	0	960	4,027	6,210
December	2,104	1,423	0	768	4,295	6,246
Total	23,874	16,150	0	9,984	50,009	86,450

Monthly Energy Costs - 141 ST READINESS CENTER

Jackson Barracks Spirit
L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
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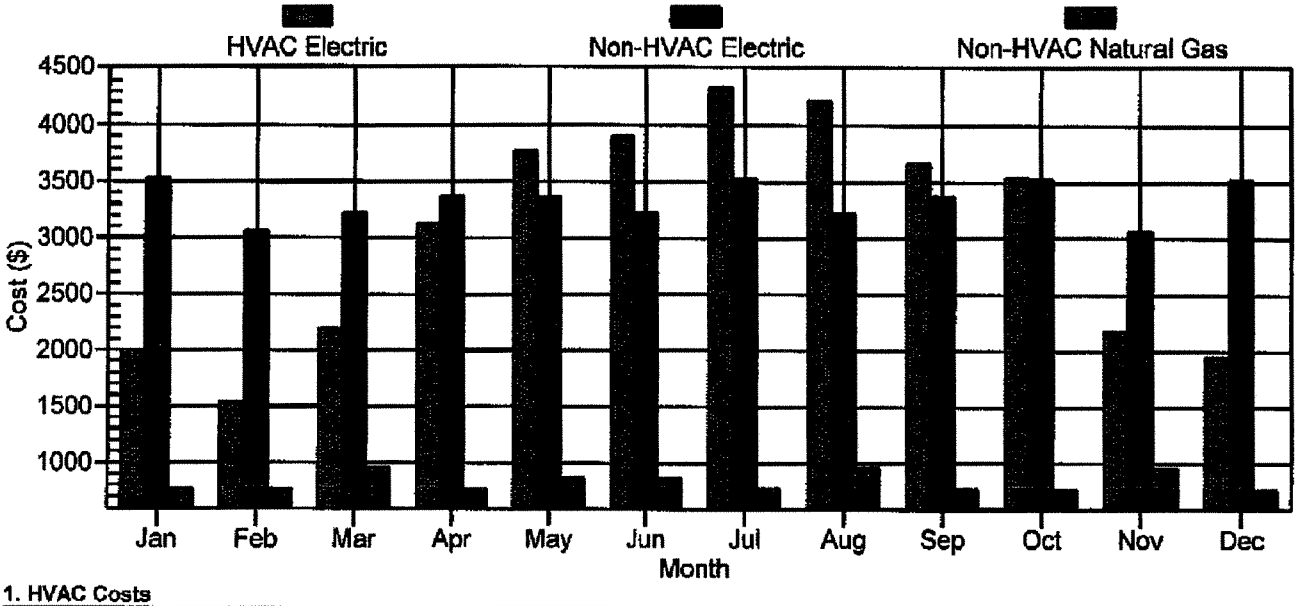


1. HVAC Costs

Month	Electric ($)	Natural Gas ($)	Fuel Oil ($)	Propane ($)	Remote Hot Water ($)	Remote Steam ($)	Remote Chilled Water ($)
January	1,982	0	0	0	0	0	0
February	1,542	0	0	0	0	0	0
March	2,203	0	0	0	0	0	0
April	3,126	0	0	0	0	0	0
May	3,771	0	0	0	0	0	0
June	3,912	0	0	0	0	0	0
July	4,342	0	0	0	0	0	0
August	4,225	0	0	0	0	0	0
September	3,669	0	0	0	0	0	0
October	3,537	0	0	0	0	0	0
November	2,183	0	0	0	0	0	0
December	1,951	0	0	0	0	0	0
Total	36,441	0	0	0	0	0	0

2. Non-HVAC Costs

Month	Electric ($)	Natural Gas ($)	Fuel Oil ($)	Propane ($)	Remote Hot Water ($)	Remote Steam ($)
January	3,527	768	0	0	0	0
February	3,067	768	0	0	0	0
March	3,220	960	0	0	0	0
April	3,374	768	0	0	0	0
May	3,374	864	0	0	0	0
June	3,220	864	0	0	0	0
July	3,527	768	0	0	0	0
August	3,220	960	0	0	0	0
September	3,374	768	0	0	0	0
October	3,527	768	0	0	0	0
November	3,067	960	0	0	0	0
December	3,527	768	0	0	0	0
Total	40,025	9,984	0	0	0	0

Monthly Energy Use by Component - 141 ST READINESS CENTER

Jackson Barracks Spirit
L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:34PM

1. Monthly Energy Use by System Component

Component	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Air System Fans (kWh)	7215	6094	7347	10078	13003	12949	14582	14222	11930	11864	7572	7385
Cooling												
Electric (kWh)	5946	4445	7359	11653	14933	16249	19296	18201	15060	13914	7275	5913
Natural Gas (Therm)	0	0	0	0	0	0	0	0	0	0	0	0
Fuel Oil (na)	0	0	0	0	0	0	0	0	0	0	0	0
Propane (na)	0	0	0	0	0	0	0	0	0	0	0	0
Remote HW (na)	0	0	0	0	0	0	0	0	0	0	0	0
Remote Steam (na)	0	0	0	0	0	0	0	0	0	0	0	0
Remote CW (na)	0	0	0	0	0	0	0	0	0	0	0	0
Heating												
Electric (kWh)	429	24	34	0	0	0	0	0	0	0	31	39
Natural Gas (Therm)	0	0	0	0	0	0	0	0	0	0	0	0
Fuel Oil (na)	0	0	0	0	0	0	0	0	0	0	0	0
Propane (na)	0	0	0	0	0	0	0	0	0	0	0	0
Remote HW (na)	0	0	0	0	0	0	0	0	0	0	0	0
Remote Steam (na)	0	0	0	0	0	0	0	0	0	0	0	0
Pumps (kWh)	6653	5908	7141	7596	7921	7872	8153	8139	7709	7864	6875	6608
Clg. Tower Fans (kWh)	4528	2800	5650	9741	11286	11826	12244	12244	11164	10566	5540	4439
Lighting (kWh)	26298	22868	24012	25155	25155	24012	26298	24012	25155	26298	22868	26298
Electric Eqpt. (kWh)	17790	15470	16243	17017	17017	16243	17790	16243	17017	17790	15470	17790
Misc. Electric (kWh)	0	0	0	0	0	0	0	0	0	0	0	0
Misc. Fuel												
Natural Gas (Therm)	1920	1920	2400	1920	2160	2160	1920	2400	1920	1920	2400	1920
Propane (na)	0	0	0	0	0	0	0	0	0	0	0	0
Remote HW (na)	0	0	0	0	0	0	0	0	0	0	0	0
Remote Steam (na)	0	0	0	0	0	0	0	0	0	0	0	0

Monthly Energy Use by Energy Type - 141 ST READINESS CENTER

Jackson Barracks Spirit
L. T. Vivien, Jr. & Associates, Inc.

04/12/2006
01:34PM

1. HVAC Energy Use

Month	Electric (kWh)	Natural Gas (Therm)	Fuel Oil (na)	Propane (na)	Remote HW (na)	Remote Steam (na)	Remote CW (na)
Jan	24,770	0	0	0	0	0	0
Feb	19,272	0	0	0	0	0	0
Mar	27,532	0	0	0	0	0	0
Apr	39,069	0	0	0	0	0	0
May	47,142	0	0	0	0	0	0
Jun	48,896	0	0	0	0	0	0
Jul	54,276	0	0	0	0	0	0
Aug	52,806	0	0	0	0	0	0
Sep	45,863	0	0	0	0	0	0
Oct	44,207	0	0	0	0	0	0
Nov	27,293	0	0	0	0	0	0
Dec	24,385	0	0	0	0	0	0
Totals	455,510	0	0	0	0	0	0

2. Non-HVAC Energy Use

Month	Electric (kWh)	Natural Gas (Therm)	Fuel Oil (na)	Propane (na)	Remote HW (na)	Remote Steam (na)
Jan	44,089	1,920	0	0	0	0
Feb	38,338	1,920	0	0	0	0
Mar	40,255	2,400	0	0	0	0
Apr	42,172	1,920	0	0	0	0
May	42,172	2,160	0	0	0	0
Jun	40,255	2,160	0	0	0	0
Jul	44,089	1,920	0	0	0	0
Aug	40,255	2,400	0	0	0	0
Sep	42,172	1,920	0	0	0	0
Oct	44,089	1,920	0	0	0	0
Nov	38,338	2,400	0	0	0	0
Dec	44,089	1,920	0	0	0	0
Totals	500,311	24,960	0	0	0	0

M. Plumbing Design Analysis

M-1 Plumbing Riser Calculations

Prepared by:

Lucien T. Vivien, Jr. & Associates, Inc.

(1 pages follows)

PLUMBING RISER CALCULATIONS

Job Name: Jackson Barracks 141 Readness Center Job No: _____

Date: 2/23/2006

FIXTURE UNIT WEIGHTS		
TYPE	FIXTURE UNITS (DEMAND)	
	water	waste
WC (TANK)	5.0	6.0
WC (VALVE)	10.0	8.0
LAV	2.0	2.0
URINAL	5.0	4.0
SHOWER	4.0	2.0
TUB	4.0	3.0
SINK	4.0	2.0
SERV. SINK	3.0	2.0
DF	1.0	0.5
FD	0.0	2.0

RISER DESIGNATION : Total			
FIX TYPE	QUANTITY	TOTAL FIX UNITS	
		water	waste
WC (TANK)	0	0	0
WC (VALVE)	36	360	288
LAV	33	66	66
URINAL	13	65	52
SHOWER	33	132	66
TUB	0	0	0
SINK	1	4	2
SERV. SINK	4	12	8
DF	8	8	4
FD	22	0	44
TOTAL FIXTURE UNITS		647	530

M-2 Hot Water Demand – Water Heater

Prepared by:

Lucien T. Vivien, Jr. & Associates, Inc.

(1 page follows)

HOT WATER DEMAND - WATER HEATER					
Fixture	***Description***	***Quantity***	***HW Demand GPH***	***Total GPH***	***Temp F***
P2/2A	Lavatory	33	15	495	120
P4	Two Compartment Sink	1	20	20	120
P5	Service sink	4	20	80	120
P7	Shower	17	75	1275	120
			TOTAL	1870	GPH

PROBABLE MAX DEMAND FACTOR	0.4	**RECOVERY**	**748 GPH**
STORAGE FACTOR	1	**TANK CAP**	**748 GAL.**

USE 2- 250 gal WITH 748 GPH RECOVERY @ 80

N. Fire Protection Hydraulic Calculations

(5 pages follow)

Contract no. _____ Sheet no. 1 of 1

Name and location LIANG. 4th Floor Light Hazard

Reference	K=5.6 Nozzle type and location	Flow in gpm (L/min)	Pipe size (in.)	Fitting and devices		Pipe equivalent length	Friction loss psi/ft (bar/m)	Required psi (bar)	Normal Pressure	Notes
1	16.9 q		1	2	length	2	.15	P_t .6	P_t	$q = 13 \times 13 \times 0.1$
	16.9 Q			1¼ L	fitting	2		P_f 9.1	P_v	$= 16.9$ gpm
					total	4		P_e	P_n 9.7	
	q				length			P_t	P_t	K for sprk. on
	Q				fitting			P_f	P_v	drop in psi/q = $\frac{16.9}{\sqrt{9.7}} = 5.4$
					total			P_e	P_n	
1A	16.9 q		1¼	13	length	13	.04	P_t .52	P_t	
	16.9 Q				fitting			P_f 9.7	P_v	
					total	13		P_e	P_n 10.2	
2	17.3 q		1½	13	length	13	.055	P_t .72	P_t	$q = 5.42\sqrt{10.2}$
	54.2 Q				fitting			P_f 10.2	P_v	$= 17.3$
					total	13		P_e	P_n 10.9	
3	17.9 q		1½	6.5	length	6.5	.13	P_t .85	P_t	$q = 5.42\sqrt{10.9}$
	52.1 Q				fitting			P_f 10.9	P_v	$= 17.9$
					total	6.5		P_e	P_n 11.8	
	q				length			P_t	P_t	K for b.L.
	Q				fitting			P_f	P_v	$= 51.9\sqrt{11.8} = 151$
					total			P_e	P_n	
4	104 q		2	13	length	13	.13	P_t 2.7	P_t	$q = 2 \times 52.1$
	104 Q			1½ T	fitting	8		P_f 11.8	P_v	$= 104$
					total	21		P_e	P_n 14.5	
5	q		2½	13	length	13	.25	P_t 6	P_t	$Q = 104 + 2(15.1\sqrt{14.5})$
	219 Q			2T	fitting	11		P_f 14.5	P_v	$= 219$
					total	24		P_e	P_n 20.5	
6	q		3	13	length	13	.2	P_t 5.4	P_t	$Q = 219 + 2(15.1\sqrt{20.5})$
	356 Q			2½ T	fitting	13		P_f 20.5	P_v	$= 356$
					total	26		P_e	P_n 25.9	
7	q		4	166	length	166	.1	P_t 20.8	P_t	$Q = 356 + 2(15.1\sqrt{25.9})$
	510 Q			3-L, GV, CV	fitting	42		P_f 25.9	P_v	$= 510$
					total	208		P_e	P_n 46.7	
8	q		6	79	length	79		P_t 5.7	P_t	$Q = 510 + 2(50$
	760 Q			T, 3-L, 2-CV, 2-GV	fitting	277		P_f 46.7	P_v	$= 760$
					total	356		P_e	P_n 52.4	
	q				length			P_t	P_t 52.4	$P_e = 62 \times .423$
	Q				fitting			P_f	P_v	$= 26.9$
					total			P_e 26.9	P_n 79	
	q				length			P_t	P_t	Add 5 psi F.O.S.
	Q				fitting			P_f	P_v	$5 + 79 = 84$
					total			P_e	P_n 84	
	q				length			P_t	P_t	
	Q				fitting			P_f	P_v	
					total			P_e	P_n	
	q				length			P_t	P_t	
	Q				fitting			P_f	P_v	
					total			P_e	P_n	
	q				length			P_t	P_t	
	Q				fitting			P_f	P_v	
					total			P_e	P_n	
	q				length			P_t	P_t	
	Q				fitting			P_f	P_v	
					total			P_e	P_n	
	q				length			P_t	P_t	
	Q				fitting			P_f	P_v	
					total			P_e	P_n	

P_t = total pressure; P_f = friction loss pressure; P_v = velocity pressure; P_e = elevation pressure

Contract no. _____ Sheet no. 1 of 2

Name and location LAANG 1st Floor Ordinary Hazard Group 2

Reference	K=5.6 Nozzle type and location	Flow in gpm (L/min)	Pipe size (in.)	Fitting and devices		Pipe equivalent length	Friction loss psi/ft (bar/m)	Required psi (bar)	Normal Pressure	Notes
1	22 q			2	length	2		P_t 6 P_t		q = 13×8.4×.2
	22 Q	1		L	fitting	2	.16	P_f 1.4 P_v		= 22
					total	4		P_e P_n 16		
	q				length			P_t P_t		K for Aptr. on
	Q				fitting			P_f P_v		drop = 22/√16 = 5.5
					total			P_e P_n		
1A	22 q			8.4	length	8.4		P_t .3 P_t		
	22 Q		1¼		fitting		.04	P_f 16 P_v		
					total	8.4		P_e P_n 16.3		
2	q			8.4	length	8.4		P_t 1.3 P_t		Q = 22 + 5.5√16.3
	44 Q		1¼		fitting		.15	P_f 16.3 P_v		= 44
					total	8.4		P_e P_n 17.6		
3	q			4	length	4		P_t 2.2 P_t		Q = 44 + 5.5√17.4
	67 Q		1¼	L	fitting	3	.32	P_f 17.6 P_v		= 67
					total	7		P_e P_n 19.8		
	q				length			P_t P_t		K for b.L. = 67/√19.8
	Q				fitting			P_f P_v		= 15.1
					total			P_e P_n		
3A	q			13	length	13		P_t 1 P_t		
	67 Q	2		T	fitting	10	.045	P_f 19.86 P_v		
					total	23		P_e P_n 19.9		
4	q			10.4	length	10.4		P_t 2.5 P_t		Q = 67 + 15.1√19.9
	134 Q	2		L	fitting	5	.16	P_f P_v		= 134
					total	15.4		P_e 19.9 P_n 22.4		
5	q			8.4	length	8.4		P_t 1.9 P_t		Q = 134 + 5.5√22.4
	Q	2			fitting		.22	P_f 22.4 P_v		= 160
					total			P_e P_n 24.3		
6	q			4.2	length	4.2		P_t 4.3 P_t		Q = 160 + 5.5√24.3
	187 Q	2		T	fitting	10	.5	P_f 24.3 P_v		= 187
					total	14.2		P_e P_n 28.6		
7	22 q	(say)	1½	11.2	length	11.2		P_t .3 P_t		$P = \left(\frac{22}{5.5}\right)^2 + .3 = 16.3$
	Q			L	fitting	4	.019	P_f P_v		
					total	15.2		P_e P_n 16.3		
8	q			15.4	length	15.4		P_t 1.6 P_t		Q = 22 + 5.5√16.3
	44 Q		1½	2-L	fitting	8	.07	P_f 16.3 P_v		= 44
					total	23.4		P_e P_n 17.9		
9	q			8.4	length	8.4		P_t .4 P_t		Q = 44 + 5.5√17.9
	67 Q	2			fitting		.045	P_f 17.9 P_v		= 67
					total			P_e P_n 18.3		
10	q			4.2	length	4.2		P_t .3 P_t		Q = 67 + 5.5√18.3
	91 Q	2			fitting		.079	P_f P_v		= 91
					total	4.2		P_e 18.3 P_n 18.6		
	q				length			P_t P_t		K for b.L.
	Q				fitting			P_f P_v		= 9√18.6 = 20.9
					total			P_e P_n		
	q				length			P_t P_t		q for b.l.
	Q				fitting			P_f P_v		= 20.9√28.4 = 111
					total			P_e P_n		
11	q			13	length	13		P_t 2.9 P_t		
	298 Q		2½		fitting		.3	P_f 28.4 P_v		Q = 111 + 187 = 298
					total			P_e P_n 32.3		
16	229 q	(say)	1¼	8.4	length	8.4		P_t .2 P_t		
	Q				fitting		.041	P_f 16 P_v		
					total			P_e P_n 16.3		

P_t = total pressure; P_f = friction loss pressure; P_v = velocity pressure; P_e = elevation pressure

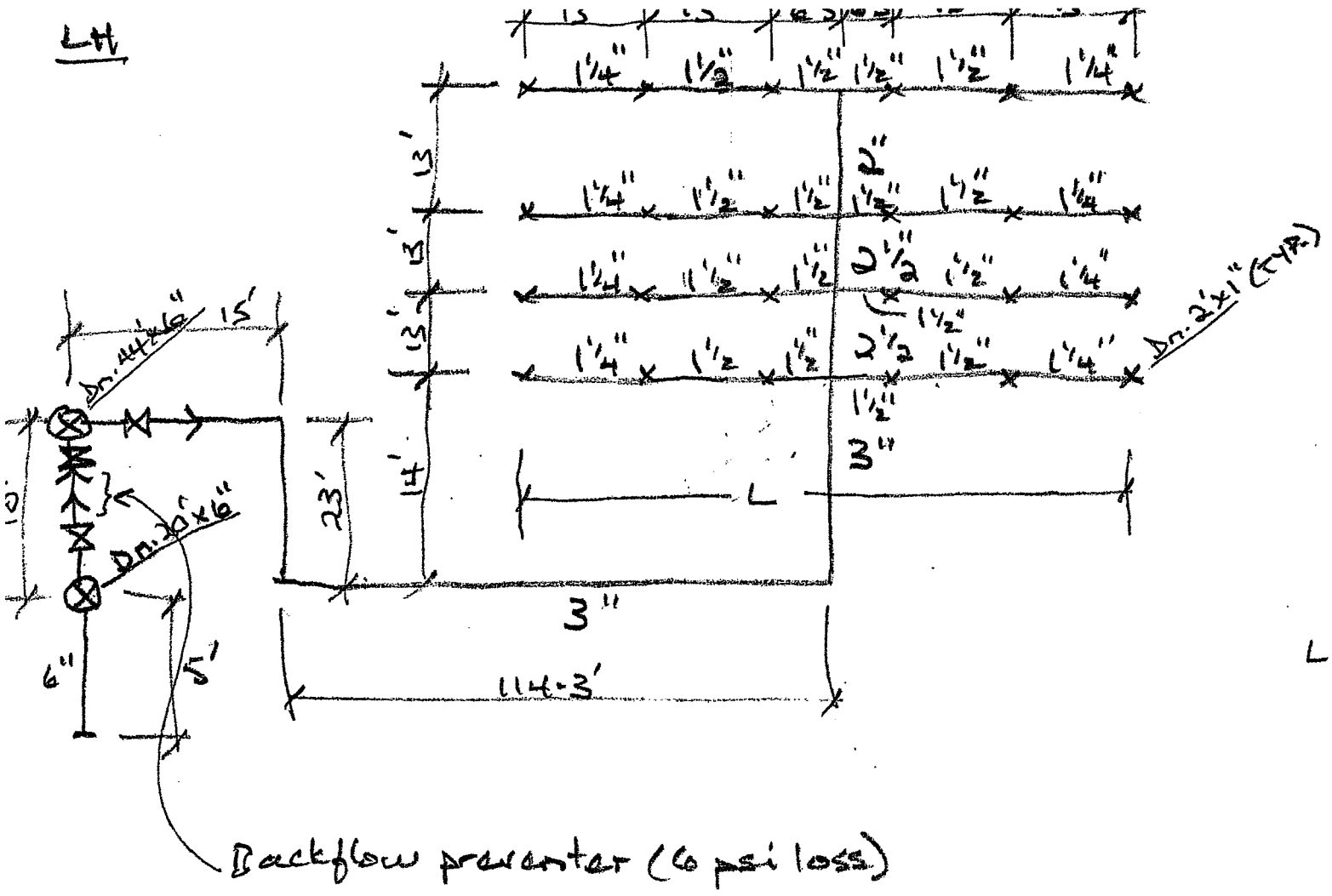
Contract no. _____ Sheet no. 2 of 2

Name and location _____

Reference	Nozzle type and location	Flow in gpm (L/min)	Pipe size (in.)	Fitting and devices		Pipe equivalent length	Friction loss psi/ft (bar/m)	Required psi (bar)	Normal Pressure	Notes
17		q		8.4	length	8.4		P_t 1.3 P_t		$Q = 22 + 5.5\sqrt{16.3}$
	44	Q	1¼		fitting		.15	P_f 16.3 P_v		$= 44$
					total	8.4		P_e P_n 17.6		
18		q		8.4	length	8.4		P_t 2.7 P_t		$Q = 44 + 5.5\sqrt{17.6}$
	67	Q	1¼		fitting		.32	P_f 17.6 P_v		$= 67$
					total	8.4		P_e P_n 20.3		
19		q		8.4	length	8.4		P_t 2.3 P_t		$Q = 67 + 5.5\sqrt{20.3}$
	92	Q	1½		fitting		.27	P_f 20.3 P_v		$= 92$
					total	8.4		P_e P_n 22.6		
20		q		4.2	length	4.2		P_t 1.8 P_t		$Q = 92 + 5.5\sqrt{22.6}$
	118	Q	1½		fitting		.43	P_f 22.6 P_v		$= 118$
					total	4.2		P_e P_n 24.4		
		q			length			P_t P_t		K for b. L. $= 118/\sqrt{24.4}$
					fitting			P_f P_v		$= 23.9$
		Q			total			P_e P_n		
13	22	q (3GPM)	1½	8.4	length	8.4		P_t .16 P_t		$P = \left(\frac{22}{5.5}\right)^2 + .16 = 16.2$
		Q			fitting		.019	P_f 16 P_v		
					total	8.4		P_e P_n 16.2		
14		q		16.8	length	16.8		P_t .35 P_t		$Q = 22 + 5.5\sqrt{16.2}$
	44	Q	2		fitting		.021	P_f 16.2 P_v		$= 44$
					total	16.8		P_e P_n 16.6		
15		q		4.2	length	4.2		P_t .7 P_t		$Q = 44 + 5.5\sqrt{16.6}$
	66	Q	2	T	fitting	10	.046	P_f 16.6 P_v		$= 66$
					total	14.2		P_e P_n 17.3		
		q			length			P_t P_t		K for b. L. $= 66/\sqrt{17.3} = 15.9$
					fitting			P_f P_v		q " " $= 15.9\sqrt{24.4} = 78.5$
		Q			total			P_e P_n		
		q			length			P_t P_t		both b. L. $= 111 + 78.5$
					fitting			P_f P_v		
		Q			total			P_e P_n		$K = 190/\sqrt{24.4} = 38.5 = 190$
		q			length			P_t P_t		Adjusted $q = 38.5\sqrt{32.3}$
					fitting			P_f P_v		$= 219$
		Q			total			P_e P_n		
12		q		13	length	13		P_t 2.8 P_t		$Q = 298 + 219 = 517$
	517	Q	3		fitting		.29	P_f 32.3 P_v		
					total	13		P_e P_n 36.1		
21		q		13	length	13		P_t 1.95 P_t		$Q = 517 + 38.5\sqrt{36.1}$
	748	Q	4		fitting		.15	P_f 36.1 P_v		$= 748$
					total	13		P_e P_n 38.1		
22		q		28	length	28		P_t 7.3 P_t		$Q = 748 + 38.5\sqrt{38.1}$
	986	Q	4		fitting		.26	P_f 38.1 P_v		$= 986$
					total	28		P_e P_n 45.4		
		q		220	length	220		P_t 15.3 P_t		
				3GV, 3CV, 4L	fitting	161	.035	P_f 45.4 P_v		
		Q	6		total	381		P_e P_n 58.7		
		q		35	length	35		P_t 2.5 P_t		$Q = 986 + 500$ (hose)
	1486	Q	6		fitting		.072	P_f 58.7 P_v		$= 1486$
					total			P_e P_n 61.2		
		q			length			P_t 61.2 P_t		$P_e = 20 \times .433 = 8.7$
					fitting			P_f P_v		
		Q			total			P_e 8.7 P_n 70		
		q			length			P_t 5 P_t		Add 5 psi F. 0.5.
					fitting			P_f 70 P_v		
		Q			total			P_e P_n 75		

P_t = total pressure; P_f = friction loss pressure; P_v = velocity pressure; P_e = elevation pressure

LH

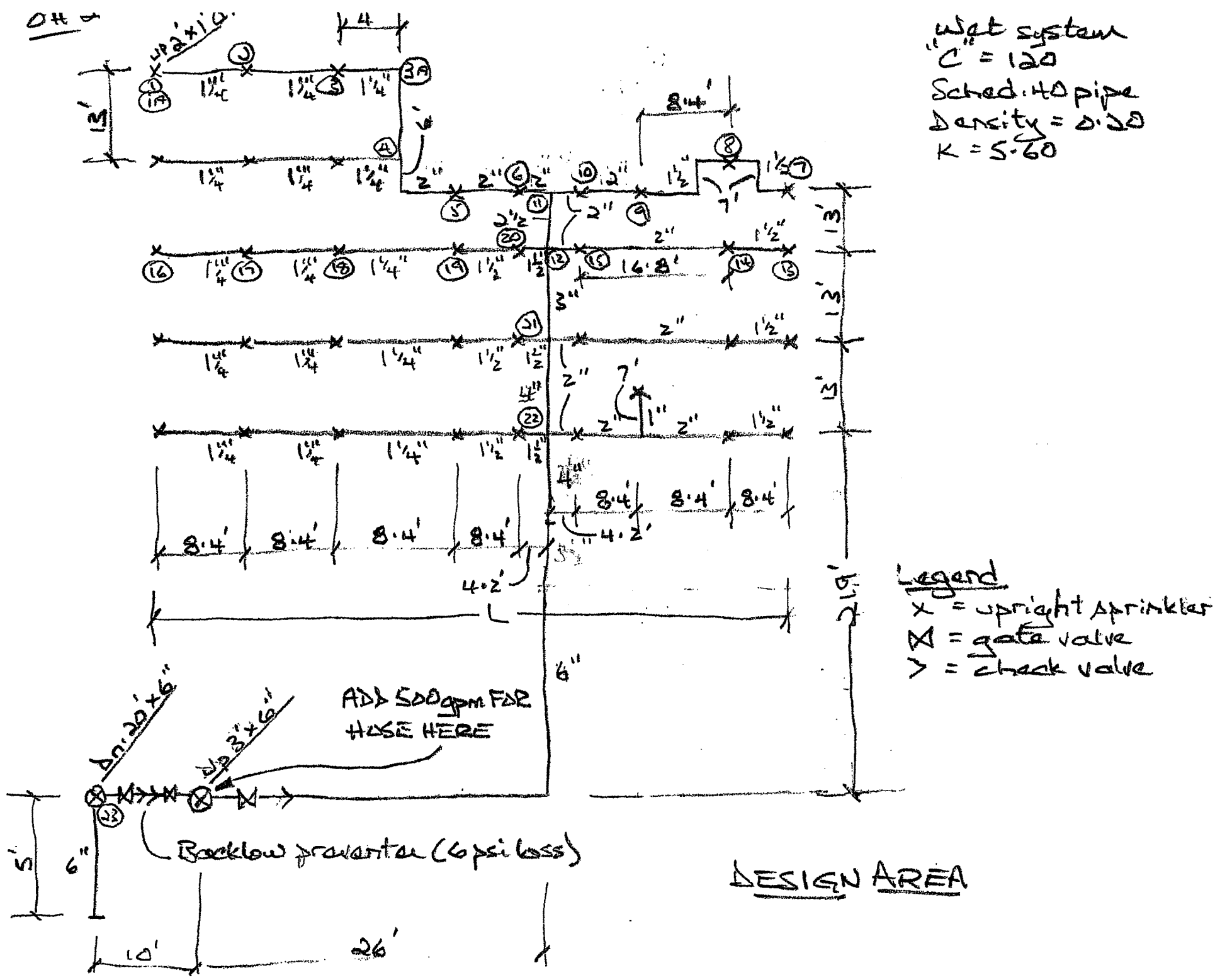


Wet system
Density = 0.10
"C" = 120
Sched. 40 pipe
K = 5.60

Legend
⋈ = gate valve
> = swing check
x = pendant sprkr.

$L = 1.2\sqrt{A}$
$= 1.2\sqrt{3000}$
$= 66'$

DESIGN AREA



Wet system
"C" = 120
Sched. 40 pipe
Density = 0.20
K = 5.60

O. Electrical Lighting Fixtures

F-1 & F1HO

Lithonia Lighting

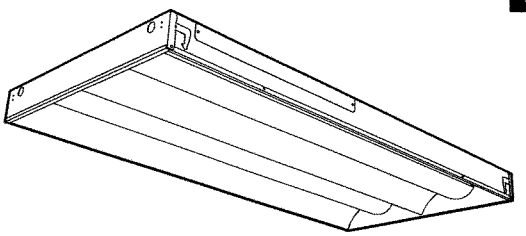
2RT5

LITHONIA LIGHTING®

Catalog Number	
Notes	Type

Volumetric Recessed Lighting

2RT5



2'x 4'
2 Lamps
Premium T5

RT5™

PATENT PENDING

FEATURES & SPECIFICATIONS

INTENDED USE

RT5 is designed for applications that require the extremely energy efficient delivery of comfortable volumetric light from a lay-in fixture that is appealing and shallow in depth. Ideal for offices, schools, hospitals, retail and numerous other commercial applications.

OPTICAL SYSTEM

Delivers volumetric lighting by filling the entire volume of space with light, delivering the ideal amount to walls, cubicles, work surfaces and people.

Luminous characteristics are carefully managed at high angles to deliver just enough intensity to deliver the volumetric effect.

Regressed, two-piece refractive system obscures and softens the lamp and smoothly washes the reflector with light.

Linear faceted reflector softens and distributes light into the space and minimizes the luminance ratio between the fixture and the ceiling.

High angle shielding provided by mechanical cut-off across the refractor and fresnel refraction along the refractor provides a quiet ceiling.

Sloped endplates provide a balanced fixture to ceiling ratio while enhancing the perception of fixture depth.

CONSTRUCTION

Impact modified acrylic prismatic refractor with polymer light-diffusing film.

Rugged, one-piece, cold-rolled steel reflector with embossed facets. Polyester powder paint after fabrication.

Galvanized ballast box and endplates for a rigid structure with integral T-bar clips.

Fixtures may be mounted end-to-end.

ELECTRICAL SYSTEM

Highly efficient program-start electronic ballasts, Class P, thermally protected, resetting, HPF, non-PCB, UL Listed, CSA Certified, sound rated A+. Premium T5 lamp with enhanced phosphors and 85 CRI. Ballast/lamp efficacy up to 100+ LPW.

0.95 ballast factor standard for typical applications. 1.15 ballast factor available for higher ceiling height applications.

Step-dimming option allows system to be switched to 50% power for compliance with common energy codes while maintaining fixture appearance.

MAINTENANCE

Side mounted ballast tray accessed by removing adjacent ceiling tile. Ballast tray may be removed from fixture during service.

Lamps accessed by squeezing refractor to release from retention tabs.

LISTING

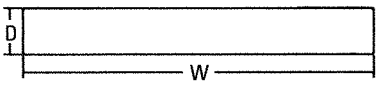
UL listed (standard). C-UL Listed (see Options).

WARRANTY

Fixture guaranteed for one year against mechanical defects in manufacture. Lamp and ballast system warranty with 60 months for ballast, 24 months for lamp.

Specifications

Length:	48 (1218)
Width:	24 (610)
Depth:	3-1/8 (79)



All dimensions are inches (millimeters). Specifications subject to change without notice.

ORDERING INFORMATION

Example: **2RT5 28T5 MVOLT GEB95 LPM835P**

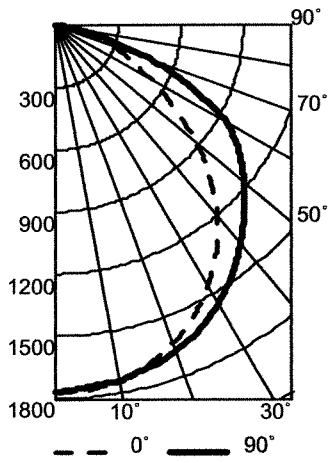
Note: Additional configurations and options with extended lead times are available. For details, see the reverse side of this sheet.

Series	Lamp type	Voltage	Ballast	Options
2RT5 Recessed T5	**28T5** 28W T5 (46")	**MVOLT**[1]	**GEB95** 0.95 ballast factor (standard)	**LPM835P** Lamped with premium 3500°K, TCLP Compliant lamp (standard)[2]
			GEB95S 0.95 ballast factor, step dimming	**LPM830P** Lamped with premium 3000°K , TCLP Compliant lamp[2]
				LPM841P Lamped with premium 4100°K, TCLP Compliant lamp[2]
				GLR Internal fast-blow fuse[3]
				PWS1836 6' prewire, 3/8" diameter, 18-gauge, 3 wire[4]
				PWS1846 6' prewire, 3/8" diameter, 18-gauge, 4 wire[5]
				EL14 Emergency battery pack (nominal 1200 lumens). See Life Safety Section
				CSA CUL Listed[6]

Notes
1 MVOLT (120-277 volts), 50-60HZ.
2 Required. All fixtures shipped with lamps installed.
3 Must specify voltage, 120 or 277.
4 For use with standard, non step-dimming ballast.
5 For use with step-dimming ballast.
6 Consult factory for 347V.

2RT5 Volumetric Recessed Lighting 2' x 4'

2RT5 28T5 GEB LPM835P, (2) FP28/835/ECO lamps, 2730 lumens per lamp, s/m 1.2 (along) 1.3 (across), test no. LTL13260



Coefficients of Utilization

CP Summary 0°	CP Summary 90°	RCR	pf 20% pc 80% pw 70%	80% 50%	80% 30%	pf 20% pc 70% 50%	70% 30%	70% 10%	pf 20% pc 50% 30%	50% 30%	50% 10%
0° 1770	1770	0	107	107	107	105	105	105	100	100	100
5° 1766	1750	1	98	94	91	92	89	86	88	86	83
15° 1695	1707	2	89	82	76	81	75	70	77	73	69
25° 1555	1623	3	82	72	65	71	64	59	68	63	58
35° 1339	1473	4	75	64	56	63	56	50	61	54	49
45° 1044	1280	5	69	57	49	56	49	43	54	48	43
55° 695	1071	6	63	52	44	51	43	38	49	42	37
65° 393	715	7	59	47	39	46	39	33	45	38	33
75° 179	257	8	55	43	35	42	35	30	41	34	30
85° 30	21	9	51	39	32	39	32	27	38	31	27
90 0	0	10	48	36	29	36	29	24	35	28	24

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	1383	25.3	28.2
0° - 40°	2264	41.5	46.1
0° - 60°	3976	72.8	81.0
0° - 90°	4908	89.9	100.0
90° - 180°	0	0.0	0.0
0° - 180°	4908	89.9	100.0

Efficiency: 89.9%

This photometric report is based on IES testing procedures, as stated in LM-41-1998. The reported lumen rating is based on lamp manufacturer's published lumen output for the lamp cold spot temperature measured during lamp calibration. Performance is indicative of stated lamp and ballast combination only. Optical efficiency is approximately 82%. The published photometric efficiency is higher due to the lamp is operating at the peak output of 3050 lumens in the fixture.

Additional Ordering Information

Extended lead time options. Consult factory for further details.

Series	Description	Comments
JP18	Job packed without individual cartons	
54T5HO	54-watt T5HO lamps	
GEB115	1.15 ballast factor	
GEB115S	1.15 ballast factor, step-dimming	
GMF[1]	Internal slow-blow fuse	
QFC_[1]	Quick-Flex fixture cable	See Quick-Flex section in PSG

Notes
1 Must specify voltage, 120 or 277.

Ballast	Input Wattage 120/277
GEB95 GEB95S	60/58
GEB95S @ 50% power mode	28/28
GEB115 GEB115S	73/71
GEB115S @50% power mode	35/35

T5/T8 Energy Comparison

System	Lamp Type	Ballast Factor	Input Watts	Watts Saved Compared to T8
3 lamp T8	F32T8	0.88	88	na
RT5 2 lamp T5	F28T5	GEB95	58	30
RT5 2 lamp T5	F28T5	GEB115	71	17

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www.lithonia.com

Sheet #: 2RT5-2x4

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F2 – F-3

Lithonia Lighting

SP 2'x4'

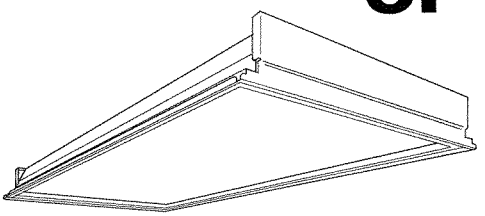
LITHONIA LIGHTING®

Catalog Number	
Notes	Type

FEATURES & SPECIFICATIONS

Specification Premium T8 Troffer

SP 2'x4'



2, 3 or 4 Lamps

INTENDED USE
Specification premium, high performance static T8 luminaires provide general illumination for recessed applications; ideal for schools, hospitals and other applications where fixture depth is a requirement.

ATTRIBUTES
Designed exclusively for use with T8 lamps, electronic ballasts and sockets.

CONSTRUCTION
Smooth hemmed fixture sides and ends for easy handling. Integral T-bar clips secure fixture to T-bar system. Housing formed from cold-rolled steel. Acrylic shielding material 100% UV stabilized.
Steel door frame has superior structural integrity with premium extruded appearance and precision flush mitered corners. Steel door allows easy lens replacement without frame disassembly (for lenses up to .156" thick). Door frame assemblies hinge or latch from either side of fixture. Powder-painted steel latches provide easy, secure door closure. Spring-loaded cam latches standard.
No asbestos is used in this product.

FINISH
Five-stage iron-phosphate pre-treatment ensures superior paint adhesion. Painted parts finished with high-gloss, baked white enamel.

OPTICAL
Broad range of lens options available to meet specific performance requirements.

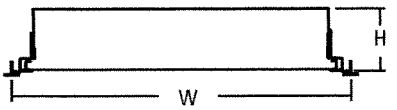
ELECTRICAL SYSTEM
Thermally-protected, resetting, Class P, HPF, non-PCB, UL Listed, CSA certified ballast is standard. Energy-saving and electronic ballasts sound rated A.
Luminaire is suitable for damp locations. AWM, TFN or THHN wire used throughout, rated for required temperatures.

LISTING
UL Listed (standard). CSA Certified or NOM Certified (see Options).

WARRANTY
Guaranteed for one year against mechanical defects in manufacture.

Specifications

Length: 48 (1218)
Width: 24 (609)
Depth: 4-1/2 (114)
Weight: 23 lbs.



Specifications subject to change without notice.
All dimensions are inches (millimeters).

ORDERING INFORMATION

Example: **2SP G 3 32 RW A12125 MVOLT 1/3 GEB10IS**

2SP | **Series**
- **2SP** 2' wide

Trim type
- **G** Grid
- **F** Overlapping flanged
- **MT** Modular fit-in

Number of lamps
- **2, 3, 4**

Not included.

32 | **Lamp type**
- **32** 32W T8 (48")

Door frame
- (blank) Flush steel, white
- **FN** Flush aluminum, natural
- **FM** Flush aluminum, matte black
- **FW** Flush aluminum, white
- **RN** Regressed aluminum, natural
- **RM** Regressed aluminum, matte black
- **RW** Regressed aluminum, white

Diffuser type
- **A12** #12 pattern acrylic
- **A12125** #12 pattern acrylic, .125" thick
- **A19** #19 pattern acrylic, .156" thick
- **A15** #15 pattern acrylic, .200" thick
- **PC1S** 1/2" x 1/2" x 1/2" plastic cube silver louver
- **PC2S** 1-1/2" x 1-1/2" x 1" plastic cube silver louver
- **PC3S** 3/4" x 3/4" x 1/2" plastic cube silver louver

Voltage[1]
- **120, 277, 347 MVOLT**

Others available.

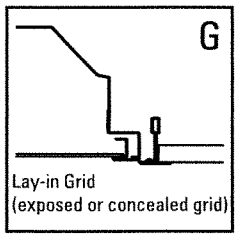
Options
- **1/4** One 4-lamp ballast
- **1/3** One 3-lamp ballast
- **GEB10IS** Electronic ballast, ≤10% THD, Instant Start
- **GEB10RS** Electronic ballast, ≤10% THD, Rapid Start
- **EL** Emergency battery pack (nominal 300 lumens; see Life Safety Section)
- **GLR** Internal fast-blow fuse[2]
- **GMF** Internal slow-blow fuse[2]
- **LST** Tandem-wired fixture pairs (shared ballasts)
- **PWS1836** 6' prewire, 3/8" dia., 18-gauge, 3 wires
- **LP_** Lamped, specify lamp type and color
- **PAF** Painted after fabrication (white enamel)
- **CRE** Flanged trim for continuous row mounting (end)
- **CRM** Flanged trim for continuous row mounting (middle)
- **LASC** LA schools safety cable
- **JP** Job packed without individual cartons; G trim only
- **CSA** CSA certified
- **NOM** NOM certified

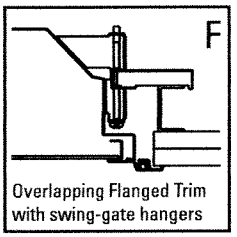
NOTES:
1 MVOLT standard for 120v and 277v applications. Some options require voltage specified.
2 Must specify voltage.

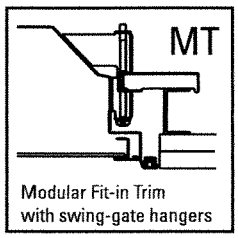
SP 2'x4' Static T8 Troffer

MOUNTING DATA

Continuous row mounting of flanged units requires CRE and CRM trim options (see Options).





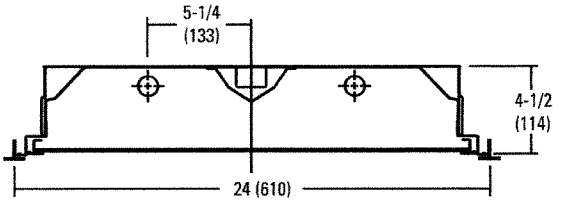


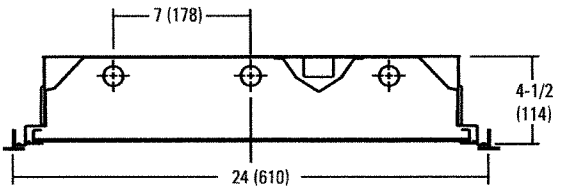
NOTES:

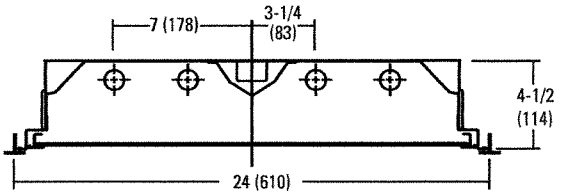
1 Recommended rough-in dimensions for F trim fixtures 24" x 48" (Tolerance is +1/4", -0"). Swing-gate range 1-5/8" to 3-3/4". Swing-gate span 23-3/8" to 26-11/16".

DIMENSIONS

All dimensions are inches (millimeters). Specifications subject to change without notice.







PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%.
Lamp configurations shown are typical. Full photometric data on these and other configurations available upon request.

2SP 3 32 A12125
Report: **LTL13408**
LUMENS PER LAMP:**2850**
Luminaire Efficiency:81.5%

Coefficients of Utilization

pf				20%					
pc	80%			50%			30%		
pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
0	97	97	97	91	91	91	87	87	87
1	89	86	83	80	78	76	77	75	74
2	82	76	71	71	67	64	69	65	63
3	75	67	61	64	59	55	61	57	54
RCR 4	69	60	53	57	52	47	55	50	47
5	64	54	47	51	46	41	50	45	41
6	59	49	42	47	41	37	45	40	36
7	55	45	38	43	37	33	42	36	32
8	51	41	34	39	33	29	38	33	29
9	48	37	31	36	30	26	35	30	26
10	45	35	28	33	28	24	33	28	24

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	2217	25.9	31.8
0° - 40°	3626	42.4	52.0
0° - 60°	5947	69.6	85.4
0° - 90°	6968	81.5	100.0
90° - 180°	0	0.0	0.0
0° - 180°	6968	81.5	100.0

2SP 3 32 A12
Report: **LTL13410**
LUMENS PER LAMP:**2850**
Luminaire Efficiency:81.9%

Coefficients of Utilization

pf				20%					
pc	80%			50%			30%		
pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
0	98	98	98	91	91	91	87	87	87
1	90	86	83	81	78	76	78	76	74
2	82	76	71	72	68	64	69	66	63
3	76	67	61	64	59	55	62	57	54
RCR 4	70	60	53	57	52	47	55	51	47
5	64	54	47	52	46	41	50	45	41
6	59	49	42	47	41	37	45	40	36
7	55	45	38	43	37	33	42	36	32
8	52	41	34	39	33	29	38	33	29
9	48	38	31	36	30	26	35	30	26
10	45	35	28	33	28	24	33	28	24

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	2219	25.9	31.7
0° - 40°	3621	42.3	51.7
0° - 60°	5944	69.5	84.9
0° - 90°	7005	81.9	100.0
90° - 180°	0	0.0	0.0
0° - 180°	7005	81.9	100.0

2SP 3 32 A19
Report: **LTL13472**
LUMENS PER LAMP:**2850**
Luminaire Efficiency:76.9%

Coefficients of Utilization

pf				20%					
pc	80%			50%			30%		
pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
0	92	92	92	85	85	85	82	82	82
1	85	82	79	77	75	73	74	73	71
2	79	73	69	69	66	63	67	64	62
3	73	66	61	63	58	55	60	57	54
RCR 4	67	59	54	57	52	48	55	51	47
5	63	54	48	51	46	43	50	46	42
6	58	49	43	47	42	38	46	41	38
7	54	45	39	43	38	34	42	37	34
8	51	41	35	40	34	31	39	34	31
9	47	38	32	37	32	28	36	31	28
10	45	35	29	34	29	26	33	29	25

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	2413	28.2	36.7
0° - 40°	3949	46.2	60.0
0° - 60°	5947	69.6	90.4
0° - 90°	6578	76.9	100.0
90° - 180°	0	0.0	0.0
0° - 180°	6578	76.9	100.0

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Sheet #: SP-2x4

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Fluorescent
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In Canada: 160 avenue Labrosse, Pointe-Claire, P.O., H9R 1A1
www.lithonia.com

F4

Lithonia Lighting

PM4 2'x4'

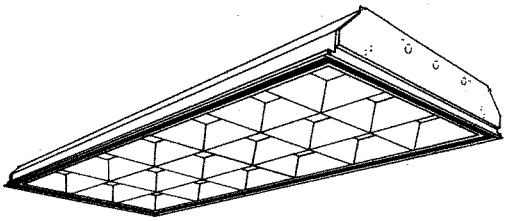
LITHONIA LIGHTING

Catalog Number	
Notes	Type

FEATURES & SPECIFICATIONS

PARAMAX® Parabolic Troffer

PM4 2'x4'



4" Deep Louver

INTENDED USE

Deep-cell parabolic luminaires for use in open area applications and electronic offices where optical control, visual comfort and light cut-off are important.

ATTRIBUTES

Choice of diffuse or specular louvers utilize the latest developments in louver finishing for minimized louver iridescence.

CONSTRUCTION

Black reveal provides floating louver appearance, conceals optional air-supply slots. Optional heat-removal dampers and air-pattern control blades allow airflow control.

Overlapping flange and modular ceiling trims factory-installed with standard swing-gate hangers or field convertible with optional trim and hangers. T-hinges die-formed for maximum strength. Latches spring-loaded, concealed in reveal.

Housing formed from cold-rolled steel. Louvers formed from anodized aluminum. No asbestos is used in this product.

FINISH

Five-stage iron-phosphate pretreatment ensures superior paint adhesion and rust resistance. Painted parts finished with high-gloss, baked white enamel.

ELECTRICAL SYSTEM

Thermally-protected, resetting, Class P, HPF, non-PCB, UL Listed, CSA certified ballast is standard. Energy saving and electronic ballasts are sound rated A.

Luminaire is suitable for damp locations. AWM, TFN or THHN wire used throughout, rated for required temperatures.

LISTING

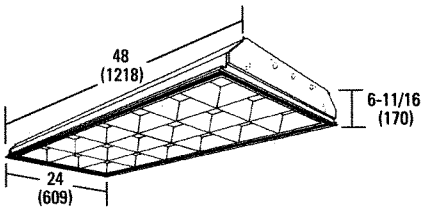
UL Listed (standard). CSA Certified or NOM Certified (see Options).

WARRANTY

Guaranteed for one year against mechanical defects in manufacture.

Specifications

Length: 48 (1218)
Width: 24 (609)
Depth: 6-11/16 (170)
Weight: 38 lbs (17 kg)



All dimensions are inches (millimeters).

Specifications subject to change without notice.

ORDERING INFORMATION

Example: **2PM4 G B 2 32 12LD 120 GEB**

2PM4

Series
- **2PM4** Paramax 4" deep cell parabolic, 2' wide

Trim type
- **G** Grid
- **F** Overlapping flange
- **MT** Modular fit-in
- **ST** Screw slot

Air function
- **A** Air supply/ return (slots in side trim)
- **H** Heat removal (through lamp cavity, dampers available)
- **D** Combination A & H
- **B** Static (no air function, matching appearance)

Number of lamps
- **2, 3, 4, 6**

Not included.

Lamp type
- **32** 32W T8 (48")
- **40** 40W T12 (48")

Number of cells[1]
- **12, 16, 18, 24, 32**

Voltage
- **120, 277, 347, MVOLT[2]**

Others available.

Louver finish
- **LD** Low iridescent anodized diffuse silver
- **LS** Low iridescent anodized specular silver
- **C** Diffuse gold anodized (champagne)

Options
- **2/1** Two 1-lamp ballast
- **1/3** One 3-lamp ballast
- **1/4** One 4-lamp ballast
- **GEB** Electronic ballasts, ≤20% THD
- **GEB10IS** Electronic ballast ≤10% THD, Instant Start
- **GEB10RS** Electronic ballast ≤10% THD, Rapid Start
- **EL** Emergency battery pack (nominal 300 lumens; see Fluorescent Battery Packs tab)
- **GLR** Internal fast-blow fuse
- **GMF** Internal slow-blow fuse
- **LST** Tandem fixture pairs (shared ballasts)
- **PWS1836** 6' prewire, 3/8" dia., 18-gauge, 3 wires
- **LP__** Lamped, specify lamp type and color
- **HRD** Heat-removal dampers
- **APB** Air-pattern control blades (A & D models only)
- **ACS** Air closure strips (A & D models only)
- **CRE** Flanged trim for continuous row mounting (end)
- **CRM** Flanged trim for continuous row mounting (middle)
- **PAF** Painted after fabrication (white enamel)
- **2R** Two reflector channel covers[3]
- **CSA** CSA Certified
- **NOM** NOM Certified
- **JP8** Palletized and stretch-wrapped (8 per), G and MT trim only

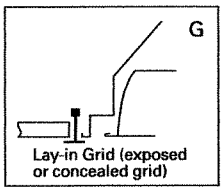
NOTES:
1. Where applicable, number of rows divisible by the number of lamps unless specified otherwise.
2. MVOLT available with GEB10IS only.
3. Only available with 3-lamp 18 and 24 cell models.

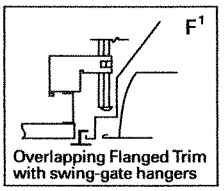
PM42'x4' Straight Lamps, 4" Louver Family

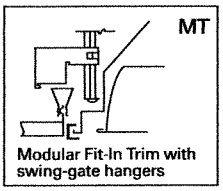
MOUNTING DATA

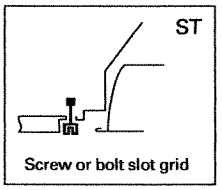
Continuous row mounting of flanged units requires CRE and CRM trim options (see Options).

Ceiling Type	Appropriate Trim Type
Exposed grid tee	G
Concealed grid tee	G, ST
Concealed Z-spline	F, MT
Metal pan (consult factory)	MT
Screw slot (consult factory)	ST
Acoustical tile, plaster, or plasterboard on rigid support parallel to lamps	F





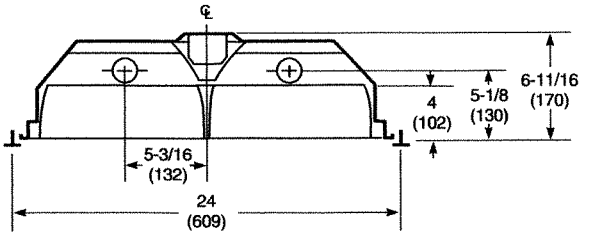


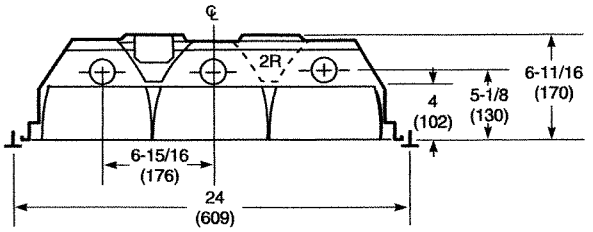


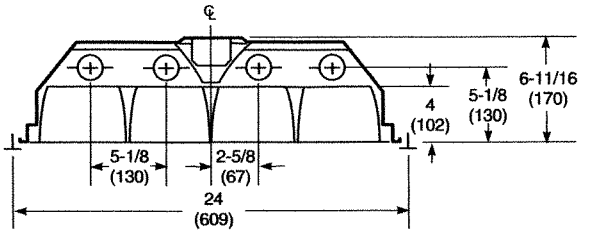
NOTE:

1 Recommended rough-in dimensions for F trim fixtures 24"x48" (Tolerance is +1/4", -0"). Swing-gate range 1" to 4-13/16", span 23-1/2" to 26-5/16".

DIMENSIONS







PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedures. Floor reflectances are 20%. Lamp configurations shown are typical. Full photometric data on these and other configurations available upon request.

2PM4 G B 2 32 12LD

Report LTL 4838 - Lumens per lamp = 2900

S/MH (along) 1.2 (across) 1.8

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
0	82	82	82	80	80	80	77	77	77
1	77	75	72	75	73	71	70	69	67
2	72	67	64	70	66	63	64	61	59
3	67	61	56	65	60	55	58	54	51
4	61	54	49	60	54	49	52	48	45
5	56	49	43	55	48	43	47	42	39
6	52	44	38	51	43	38	42	37	34
7	48	39	33	47	38	33	37	33	29
8	44	35	29	43	34	29	33	28	25
9	40	31	25	39	30	25	30	25	21
10	37	28	22	36	27	22	27	22	19

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	1194	20.6	29.8
0-40	2045	35.3	51.0
0-60	3804	65.6	94.9
0-90	4010	69.1	100.0
90-180	0	0	0
0-180	4010	69.1	100.0

2PM4 G B 3 32 18LD

Report LTL 6757 - Lumens per lamp = 2850

S/MH (along) 1.2 (across) 1.5

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
0	78	78	78	76	76	76	73	73	73
1	73	71	68	71	69	67	66	65	63
2	68	63	60	66	62	59	60	57	55
3	62	57	52	61	56	51	54	50	47
4	58	51	46	56	50	45	48	44	41
5	53	46	41	52	45	40	44	40	36
6	49	42	36	48	41	36	40	35	32
7	46	38	33	45	37	32	36	32	29
8	43	35	29	42	34	29	33	29	26
9	40	32	27	39	31	27	31	26	23
10	37	29	24	37	29	24	28	24	21

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	1911	22.3	34.1
0-40	3247	38.0	57.9
0-60	5313	62.1	94.8
0-90	5604	65.5	100.0
90-180	0	0	0
0-180	5604	65.5	100.0

2PM4 G B 4 32 32LD

Report LTL 5573 - Lumens per lamp = 2900

S/MH (along) 1.2 (across) 1.3

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
0	66	66	66	64	64	64	62	62	62
1	62	60	59	61	59	58	57	56	55
2	58	55	53	57	54	52	52	50	49
3	55	50	47	54	50	47	48	46	43
4	51	46	42	50	45	42	44	41	39
5	47	42	38	46	41	37	40	37	34
6	44	38	34	43	37	34	37	33	31
7	41	34	30	40	34	30	33	30	27
8	38	31	27	37	31	27	30	26	24
9	35	28	24	34	28	24	27	23	21
10	32	26	21	32	25	21	25	21	19

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	2635	22.7	41.0
0-40	4179	36.0	65.0
0-60	6294	54.3	97.8
0-90	6433	55.5	100.0
90-180	0	0	0
0-180	6433	55.5	100.0

Energy (Calculated in accordance with NEMA standard LE-5)

LER.FP	ANNUAL ENERGY COST*	LAMP DESCRIPTION	LAMP LUMENS	BALLAST FACTOR	WATTS
53	$4.53	(2) 32W T8	2850	.94	70
57	$4.21	(3) 32W T8	2850	.88	86
50	$4.80	(4) 32W T8	2850	.88	111

* Comparative yearly lighting energy cost per 1000 lumens

LITHONIA LIGHTING

An AcuityBrands Company

Lithonia Lighting
Acuity Lighting Group, Inc.
Fluorescent
One Lithonia Way, Conyers, GA 30012
Phone: 800-858-7763 Fax: 770-929-8789
In Canada: 1100 50th Ave., Lachine, Quebec H8T 2V3
www.lithonia.com

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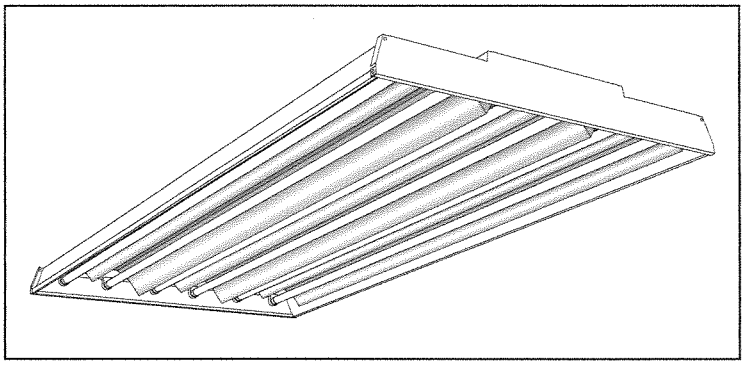
F5 – Option 1

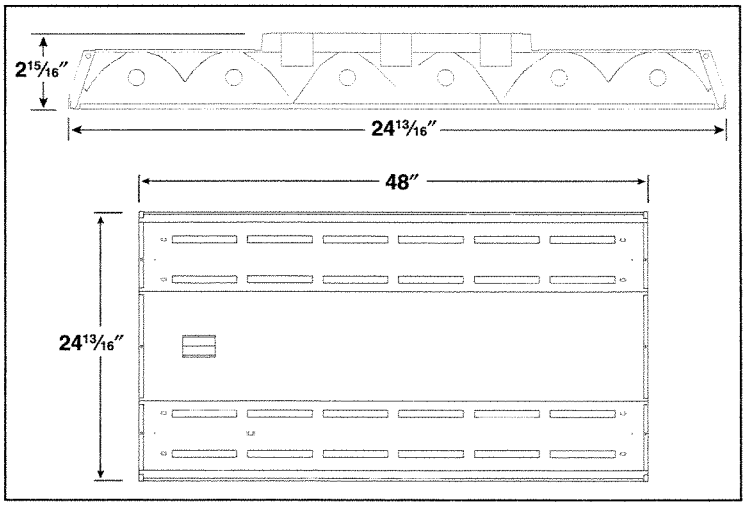
Columbia Lighting

LHR4-654

LHR4-654

Linear Fluorescent Hi-Bay
6 Lamp T5 or T5 HO





Type: _____

Job Description: _____

Features

- Extremely efficient fluorescent luminaire replaces HID in retail and industrial applications.
  - Energy savings up to 20%
  - Excellent lumen maintenance (94% versus ~65% for typical metal halide)
  - Higher maintained lumens per watt (62, versus 40 for typical metal halide hi-bay)
  - Instant restrike
  - Consistent color
  - Superior color rendering (82 CRI, versus 65-70 for metal halide)
  - Wide choice of lamp color
- Highly specular contoured reflectors drive light down to provide excellent vertical footcandles.
- Choice of uplight options.
- Battery pack option (-EL) provides instant-on emergency illumination.
- Tool-free access to lamps and ballasts.
- Rounded edges and corners for safe handling and installation.

Construction

Riveted code gauge steel construction. Die-embossed for rigidity.

Reflector

Multi-faceted specular aluminum reflector provides precise control and excellent efficiency. Also available in 95% reflectance MIRO 4 finish or white powder coat for broad light distribution. Optional uplight may be specified at 4% or 8%. Retained with quarter-turn fasteners for tool-free ballast access.

Ballast and Electrical

Energy efficient electronic, thermally protected, automatic resetting, Class P, high power factor, CBM, sound rated A. Positive stop, anti-vibrational locking lampholders. All configurations have been heat tested to ensure reliable operation and performance under normal conditions.

Finish

All steel surfaces are pre-painted with high gloss baked white enamel, applied over iron phosphate pre-treatment for maximum adhesion and rust resistance.

Mounting

Choice of mounting hardware, including the fast and flexible GLH adjustable cable system for simplified mounting to wood, concrete or steel ceiling decks, or to beams, purlins or metal strut. Also available with hardware to mount with jack chain or directly to metal strut. Optional safety tether available.

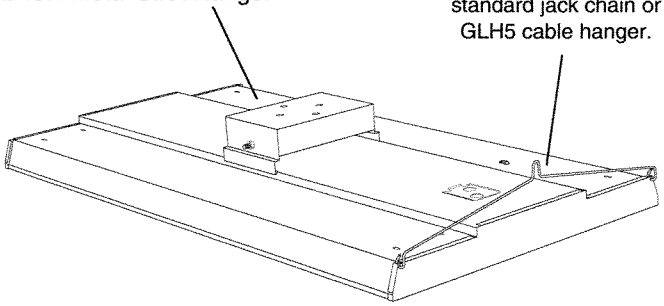
Certification

Fixtures bear a UL label. CSA certification available. Use suffix CSA.

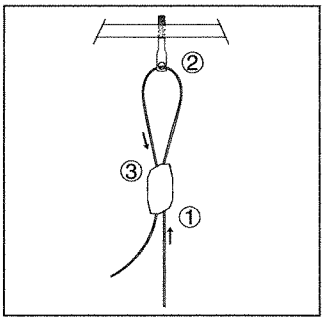
Optional Hanger Brackets

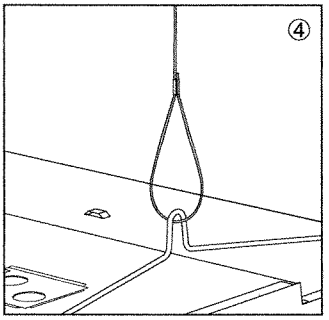
LHSH Metal Strut Hanger

LHHB Universal Hanger Bracket
Suspends fixture with standard jack chain or GLH5 cable hanger.



GLH Adjustable Cable Kit





1. Pass free end through grip fastener.
2. Feed free end around beam or through lag screw or eye bolt.
3. Return free end through grip fastener and adjust to desired length.
4. Slip loop over LHHB bracket.

I1.2

Photometric Report

LUMINAIRE: LHR4-654-M4R-8-EB5
LHR Industrial
2' X 4' 6-LAMP WITH MIRO4 REFLECTOR AND 4ROWS UPLIGHT SLOTS
BALLAST: (3)ICN2S54
BALLAST FACTOR: 1.00
LAMP: F54T5
LUMENS PER LAMP: 4400
WATTS: 360
SHIELDING ANGLE: N/A

TEST #13376
DATE: 4/7/2003
TOTAL LUMINAIRE EFFICIENCY = 99.2%
LUMINAIRE EFFICACY RATING (LER) = 73
IESNA RP-1-1993 COMPLIANCE: NONCOMPLIANT
COMPARATIVE YEARLY LIGHTING ENERGY COST PER 1000 LUMENS = $3.29
BASED ON 3000 HRS. AND $.08 PER KWH

SPACING CRITERION:
ALONG = 1.25, ACROSS = 0.90

LUMINOUS OPENING IN FEET
LENGTH: 3.88
WIDTH: 1.44
HEIGHT: 0.00

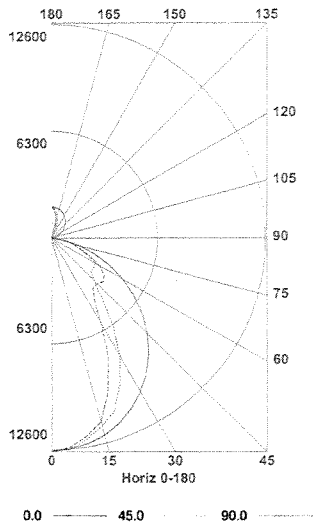
ZONAL LUMENS

ZONE	LUMENS	% LAMP	% FIXTURE
0-30	8855	33.5	33.8
0-40	13140	49.8	50.2
0-60	20255	76.7	77.3
0-90	24437	92.6	93.3
90-120	165	0.6	0.6
90-130	292	1.1	1.1
90-150	788	3.0	3.0
90-180	1762	6.7	6.7
0-180	26199	99.2	100.0

AVERAGE LUMINANCE — CANDELA/SQ M

ANGLE	0.0	22.5	45.0	67.5	90.0
0	24423	24423	24423	24423	24423
30	23480	22003	17921	14259	13018
40	22576	19028	11717	9514	9589
45	21949	16827	9607	9874	10470
50	21160	14189	9210	11248	12016
55	20086	10930	10170	12451	12757
60	18622	8669	11609	12773	12684
65	17209	8055	11980	11050	10672
70	15181	8934	10375	9739	9525
75	12587	9558	8880	9893	10399
80	9297	7622	9552	10052	8964
85	5173	7007	1680	1172	1172

INDOOR CANDELA PLOT



COEFFICIENTS OF UTILIZATION (%)

ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE = 20%

	RC	80%				70%				50%				30%			10%		0%
	RW	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0%
	1	107	103	99	96	104	100	97	93	95	92	89	90	88	85	85	83	82	79
	2	98	91	85	79	95	88	83	78	84	79	75	80	76	73	76	73	70	68
	3	90	81	73	67	87	79	72	66	75	69	64	71	66	62	68	64	61	58
	4	83	72	64	58	81	71	63	57	67	61	56	64	59	54	61	57	53	51
R	5	77	65	57	51	75	64	56	50	61	54	49	58	53	48	56	51	47	45
C	6	72	59	51	45	69	58	50	45	56	49	44	53	47	43	51	46	42	40
R	7	67	54	46	40	65	53	45	40	51	44	39	49	43	39	47	42	38	36
	8	62	50	42	36	61	49	41	36	47	40	36	45	39	35	44	38	34	33
	9	59	46	38	33	57	45	38	33	44	37	32	42	36	32	41	35	31	30
	10	55	43	35	30	54	42	35	30	41	34	30	39	33	29	38	33	29	27

RCR = ROOM CAVITY RATIO RC = EFFECTIVE CEILING CAVITY REFLECTANCE RW = WALL REFLECTANCE

This photometric test was performed using a specific lamp/ballast combination. Extrapolation of these data for other lamp/ballast combinations may produce erroneous results. The ballast factor must be applied to the lumen output rating assigned to the lamp(s) or to the candela values shown. Luminaire efficacy rating (LER) per NEMA LE5-1993. This test is run in accordance with current I.E.S.N.A. published procedures.

Ordering Information

LHR 4 - 6 - - - -

Model
LHR - Linear Hi-Bay

Size
4 - 48″ x 24 13/16″

No. of Lamps
6 - Six

Lamp Type
28 - 4′, 28 Watt, T5
54 - 4′, 54 Watt, T5 HO

Reflector
M4R - MIRO 4, 95% Reflectance (S/MH = 1.0)
LS - Specular Anodized Aluminum (S/MH = 1.0)
GW - Gloss White Powder Coat (S/MH = 1.4)

Uplight
ST - Solid Top (No Uplight)
4 - 4% Uplight
8 - 8% Uplight

Ballast
EB5 - (3) 2-Lamp Electronic T5
3EB5 - (2) 3-Lamp Electronic T5 (NA 347V or 480V)
24EB5 - (1) 2-Lamp & (1) 4-Lamp Electronic T5 (NA 347V or 480V)
For a specific ballast vendor, show as option.

Voltage
120 - 120V
277 - 277V
347 - 347V (HO only)
480 - 480V (HO only)
UNV - 120V/277V

Options
GLR - Fast Blow Fuse
EL - Emergency Battery Pack
F3C5 - 3-conductor 5′ Feed Cord Wired to Fixture
F3C10 - 3-conductor 10′ Feed Cord Wired to Fixture
F3C15 - 3-conductor 15′ Feed Cord Wired to Fixture
F4C5 - 4-conductor 5′ Feed Cord Wired to Fixture
F4C10 - 4-conductor 10′ Feed Cord Wired to Fixture
F4C15 - 4-conductor 15′ Feed Cord Wired to Fixture
C&P6 - 6′ Cord and Plug (15A)
C6TL15 - 6′ Cord and Twist-Lock™ Plug (15A) (NA 480V)
C6TL20 - 6′ Cord and Twist-Lock™ Plug (20A)
F5830 - T5 or T5 HO Lamp Installed, 82CRI, 3000K*
F5835 - T5 or T5 HO Lamp Installed, 82CRI, 3500K*
F5841 - T5 or T5 HO Lamp Installed, 82CRI, 4100K*
PAF - Paint After Fabrication
*Lamp type in catalog number will determine lamp installed.

Accessories
FSCA - Flush Steel Door with Clear, Smooth Acrylic Lens
LHTF - Fixture Safety Tether
LHHB - Universal Hanger Bracket Kit
LHSH - Metal Strut Hanger
GLH5 - 5′ Adjustable Cable Kit*
GLH10 - 10′ Adjustable Cable Kit*
GLH15 - 15′ Adjustable Cable Kit*
LHRWG654 - Wire Guard for LHR4-654
OS - Occupancy Sensor
*Use with LHHB

CO 08/04

Columbia LIGHTING
3808 N Sullivan Rd, Bldg 29 • Spokane, WA 99216 • (509) 924-7000 • www.columbialighting.com
HUBBELL® Hubbell Lighting, Inc.

F5 – Option 2

Lithonia Lighting

I-Beam (IB) IB-T5

LITHONIA LIGHTING®

Catalog Number	
Notes	Type

FEATURES & SPECIFICATIONS

INTENDED USE
The I-BEAM is an ideal one-for-one replacement of common Metal Halide high bays system. The unique Cool Running Technology provides trouble-free operation in ambient spaces up to 65°C. Applications include manufacturing, warehousing, commercial facilities and retail. The Fluorescent I-Beam performs at mounting heights from 15'-40'.

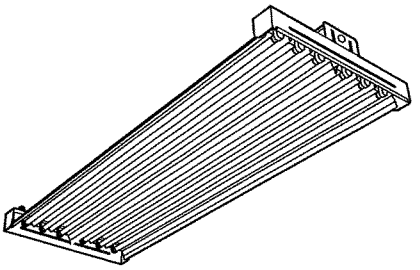
ATTRIBUTES
I-BEAM features Cool Running Technology for ambient operation up to 65°C. Backed by a full 5-year ballast warranty at 55°C, 3-year ballast warranty at 65°C. Designed for optimum performance using T5HO fluorescent lamps. The I-BEAM provides the best option for applications requiring a rugged fixture construction coupled with excellent fixture performance. Optical designs for your choice of narrow distribution for aisles or wide distribution for general lighting. Typical arrangement provide over 90% luminaire efficiency. Available with 4 or 6 lamp cross section with your choice of full direct component or with uplight. Easy two-point mounting your choice of tong hangers or convenient aircraft cable provides reliable installation, eliminates fixture sag and provides sturdy installation. Available in MVOLT (120-277), 347 or 480 volt.

CONSTRUCTION
Channel is formed of heavy-duty code gauge steel to stand up to the most demanding elements. Lamp holder assembly protects from incidental damage to reflectors during installation. Sockets include secure positioning rotating collars with enclosed contacts. Access plate on the back of the channel housing allows quick and easy wiring.

FINISH
Channel is high gloss white baked enamel; five-stage iron phosphate pretreatment ensures superior paint adhesion and rust resistance.

OPTICAL SYSTEM
Two optical systems available. Narrow distribution (ND) is ideal for narrow or aisle lighting applications and features precision formed segmented optics utilizing Alanod Miro® 4 specular aluminum reflector. Provides 95% reflectivity and warranted for 25 years. Wide distribution (WD) includes high reflectance white finish for general or open areas.

ELECTRICAL SYSTEM
Thermally protected, resetting, Class P, HPF, A+ sound-rated electronic ballast. AWM TFM or THHN wire used throughout rated for required temperatures.



I-BEAM FLUORESCENT HIGH BAY LIGHTING

T5

Fluorescent High Bay

COOL RUNNING TECHNOLOGY

PATENT PENDING

T5 Technology

Specifications

Length:	48 3/8 (1,227)
Width:	17 5/8 (448)
Depth:	4 3/8 (111)
Weight:	17 lbs. (7.71 kg)

All dimensions are inches (millimeters).
Specifications subject to change without notice.

INSTALLATION
A variety of mounting configurations are available including tong hanger, stems, chain sets and aircraft cable.

LISTING
UL/C-UL listed to US and Canadian safety standards for ambient operation up to 65°C. Suitable for damp locations.

WARRANTY
Guaranteed for one year against mechanical defects in manufacturing. Ballast warranty - Five years when operated in 55°C or less ambient conditions, three years when operated in 65°C or less ambient conditions.

ORDERING INFORMATION

Example: **IB 454L**

Series
- **IB** I-BEAM

Number of lamps/wattage

Lamps Installed[1]
- **454L** 4-Lamp, 54W, T5HO
- **654L** 6-Lamp, 54W, T5HO

Unlamped
- **454** 4-Lamp, 54W, T5HO
- **654** 6-Lamp, 54W, T5HO

Distribution
- (blank) Narrow distribution with uplight
- **NDS** Narrow distribution, no uplight
- **WD** Wide distribution with uplight
- **WDS** Wide distribution, no uplight

Voltage
- (blank) MVOLT[2]
- **347** 347 volt
- **480** 480 volt

Ballast Configuration
- (blank) Standard Configuration[3]
- **2/3** Two, three-lamp ballasts
- **2/2** Two, two-lamp ballasts

Ballast
- (blank) Program Start, 1.0 BF

Lamps Installed
- (blank) F54T5HO/841
- **LP835** F54T5HO/835
- **LP830** F54T5HO/830

Amalgam Lamps
- **LP841A** F54T5HO/841
- **LP835A** F54T5HO/835
- **LP830A** F54T5HO/830

Options
- **EL14** Emergency battery pack (1400 lumens)[4]
- **MSI** Occupancy sensor-prewired[5]
- **GLR** Internal fast blow fusing[5]
- **OCS** Reloc® OnePass® 5' installed[5]
- **FSP** Integral side panels

NOTES:
1. Lamps installed are F54T5HO/841.
2. 120-277 volt.
3. Ballast included:
   6-lamp—2 + 4-lamp ballast
   4-lamp—4-lamp ballast.
4. UL Listed 25°C.
5. Specify voltage.

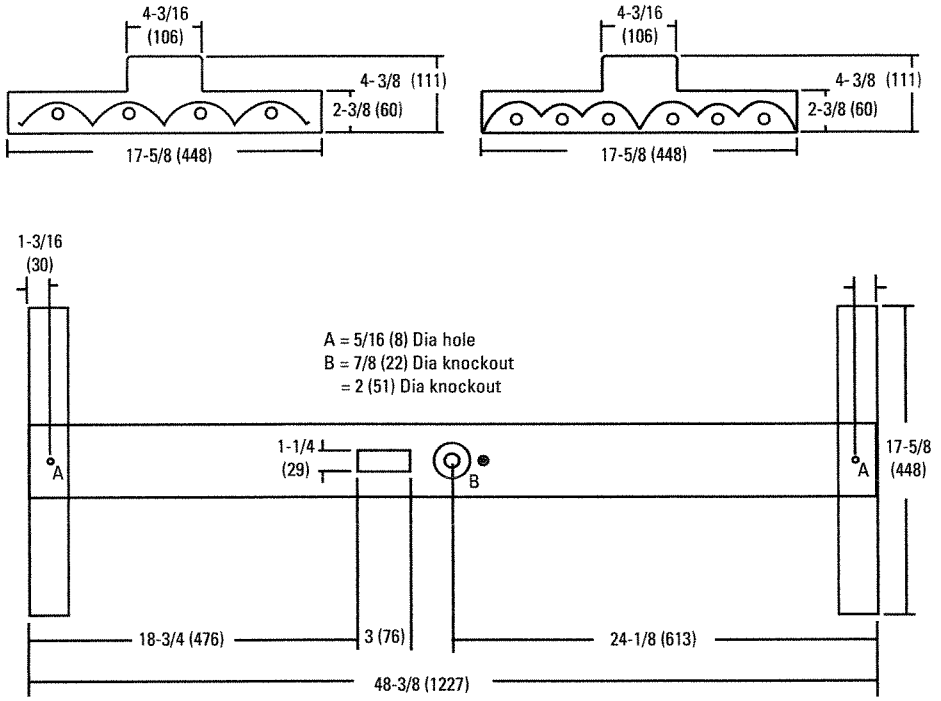
Accessories
Order as a separate catalog number.

IBAC120	Aircraft cable 10' Y hanger (One pair)
IBAC240	Aircraft cable 20' Y hanger (One pair)
THUN	Tong hanger (two required)
WGIBZ	Wireguard, zinc-coated
HC36	Chain Hanger, 36"

I-BEAM T5

DIMENSIONS

Inches (millimeters). Subject to change without notice.



PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical. All data based on 25°C. Full photometric data on these and other configurations available upon request.

IB 454

Report: **LTL14006**
LUMENS PER LAMP**4400**

Coefficients of Utilization

	pf			20%					
	pc	80%			50%			30%	
	pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
RCR	0	118	118	118	107	107	107	101	101	101
	1	109	104	101	96	93	91	91	89	87
	2	100	92	86	85	81	77	81	77	74
	3	92	82	75	76	71	66	73	68	64
	4	85	74	66	69	62	57	66	60	56
	5	78	67	59	62	56	51	60	54	50
	6	73	61	53	57	50	45	55	49	44
	7	68	56	48	52	46	41	51	45	40
	8	64	51	43	49	42	37	47	41	37
	9	60	48	40	45	39	34	44	38	33
	10	57	44	37	42	36	31	41	35	31

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	6218	35.3	35.3
0° - 40°	9065	51.5	51.4
0° - 60°	13684	77.7	77.6
0° - 90°	16413	93.3	93.1
90° - 180°	1214	6.9	6.9
0° - 180°	17626	100.1	100.0

IB 454 WD

Report: **LTL14005**
LUMENS PER LAMP**4400**

Coefficients of Utilization

	pf			20%					
	pc	80%			50%			30%	
	pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
RCR	0	110	110	110	100	100	100	94	94	94
	1	100	96	92	88	85	82	83	80	78
	2	91	83	77	76	71	67	72	68	64
	3	83	73	65	67	61	56	63	58	54
	4	75	64	56	59	52	47	56	50	46
	5	69	57	49	53	46	40	50	44	39
	6	64	51	43	47	40	35	45	39	34
	7	59	46	38	43	36	31	41	35	30
	8	55	42	34	39	32	28	37	31	27
	9	51	39	31	36	29	25	34	29	24
	10	48	36	28	33	27	22	32	26	22

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	3911	22.2	23.6
0° - 40°	6432	36.5	38.8
0° - 60°	11655	66.2	70.3
0° - 90°	15190	86.3	91.7
90° - 180°	1381	7.8	8.3
0° - 180°	16571	94.2	100.0

IB 654

Report: **LTL14055**
LUMENS PER LAMP**4400**

Coefficients of Utilization

	pf			20%					
	pc	80%			50%			30%	
	pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
RCR	0	117	117	117	108	108	108	102	102	102
	1	108	103	99	95	92	89	90	88	86
	2	98	90	84	84	79	75	80	76	72
	3	90	80	72	74	68	63	71	66	62
	4	83	71	63	67	60	55	64	58	53
	5	77	64	56	60	53	48	58	52	47
	6	71	58	50	55	48	42	53	46	42
	7	66	53	45	50	43	38	48	42	37
	8	62	49	41	46	39	34	45	38	34
	9	58	45	37	43	36	31	41	35	31
	10	54	42	34	40	33	29	39	32	28

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	8275	31.3	31.5
0° - 40°	12681	48.0	48.2
0° - 60°	20122	76.2	76.5
0° - 90°	25014	94.8	95.2
90° - 180°	1272	4.8	4.8
0° - 180°	26287	99.6	100.0

LITHONIA LIGHTING®
An AcuityBrands Company

Sheet #: I-B-T5

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www.lithonia.com

F6

Lithonia Lighting

WC-C

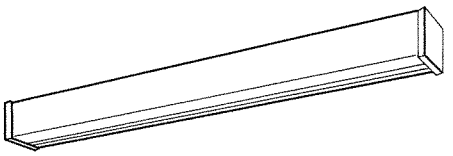
LITHONIA LIGHTING

Catalog Number	
Notes	Type

FEATURES & SPECIFICATIONS

All Purpose Wall Bracket

WC



2', 3' or 4' Lengths
1 or 2 Lamps

INTENDED USE

For wall or ceiling mount – vertical or horizontal. Ideal for stairwells, corridors, lavatories or any utility application.

ATTRIBUTES

Easy maintenance design for individual or row mounting.

CONSTRUCTION

Heavy-duty code grade steel. Metal parts are die-formed.

FINISH

Five-stage iron-phosphate pretreatment ensures superior paint adhesion and rust resistance. Standard finish is high-gloss, baked white enamel (architectural black available).

OPTICAL SYSTEM

Available with high performance A12 pattern clear acrylic or low brightness matte white opal acrylic. Front metal fascia eliminates direct illumination.

ELECTRICAL SYSTEM

CSA listed. AWM, TFN or THHN wire used throughout, rated for required temperatures.

INSTALLATION

End caps spring-loaded for easy diffuser removal.

LISTING

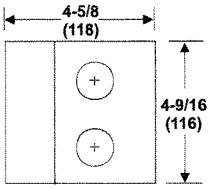
Listed and labeled to comply with Canadian Standards.

WARRANTY

Guaranteed for one year against mechanical defects in manufacture.

Specifications

Length: 24 (609), 36 (914) or 48 (1218)
Width: 4-5/8 (118)
Depth: 4-9/16 (116)
Weight: 14 lbs. (6.3 kg)



ORDERING INFORMATION

Example: **WC 2 32 120 GEB CSA**

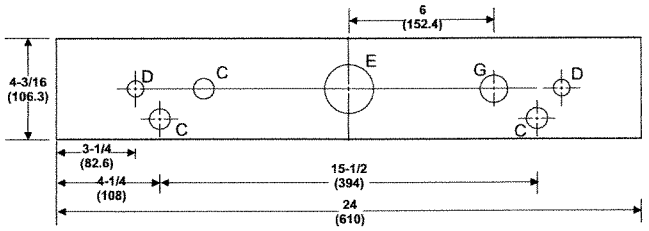
WC

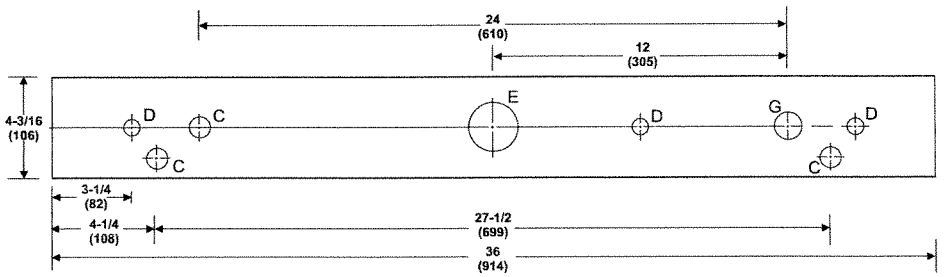
Series	Number of lamps	Lamp type	Diffuser type	Voltage	Options
WC All Purpose Wall Bracket	**1, 2** Not included.	**17** 17W T8 (24")	**(blank)** Matte white opal acrylic	**120, 347, MVOLT**[1] Others available.	**CO** Grounded convenience outlet, 120V only (lower right)[2]
		20 20W TS T12 (24")	**A12** #12 pattern acrylic		**S1** Pull-chain switch; installed bottom left; *on/off* operation of all lamps only (120V only)[2]
		25 25W T8 (36")	**FAC** Matte white opal acrylic with front metal fascia		**GEB** Electronic ballasts, ≤20% THD
		30 30W T12 (36")			**GEB10IS** Electronic ballasts, ≤10% THD, Instant Start
		32 32W T8 (48")	**FA12** #12 pattern acrylic with front metal fascia		**GEB10RS** Electronic ballasts, ≤10% THD, Rapid Start
		40 40W T12 (48")			**ES** Energy saving ballasts
					MB Architectural black finish
					CSA Listed and labeled to comply with Canadian Standards

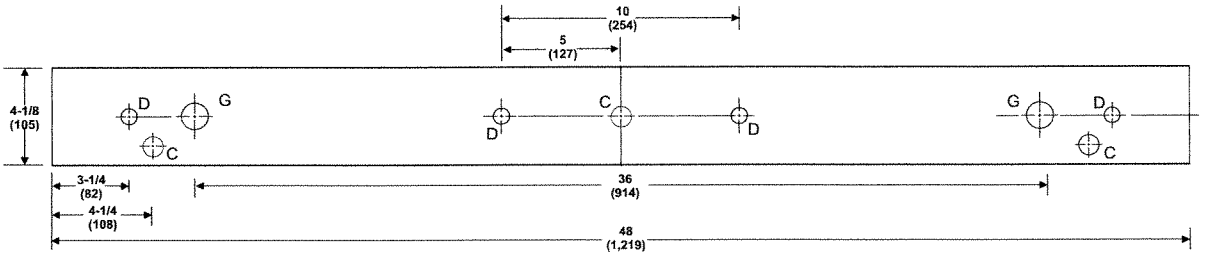
NOTES:
1 MVOLT (120/277) available with GEB10IS only.
2 For optional locations, consult factory.

WC Wall Bracket, All Purpose

MOUNTING DATA

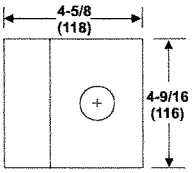


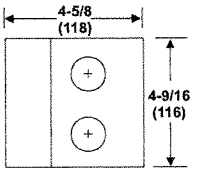




DIMENSIONS

Inches (millimeters). Subject to change without notice.





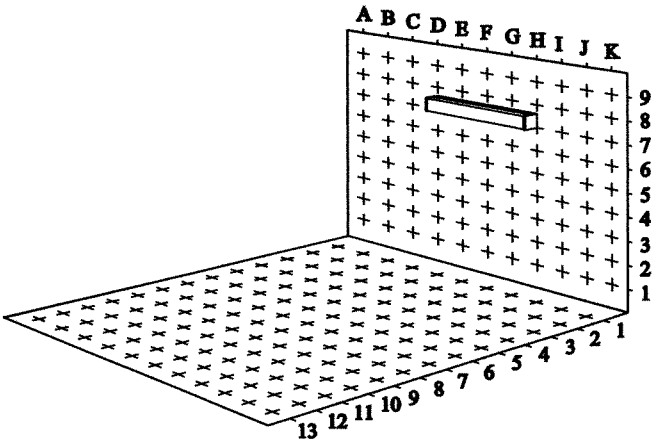
C = 7/8 (22) Dia. K.O.
D = 11/16 (18) Dia. K.O.
E = 2(51) Dia. K.O.
G = 1-1/8 (29) Dia. K.O.

PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Vertical and horizontal illuminance is calculated with fixture mounting 7' above floor. Reflectances 80/50/20%. Full photometric data available upon request.

WC 2 32 GEB CSA
Report LTL 5736
Initial point illuminance on wall and horizontal work surface (fc)
X and Y coordinates are on 12" centers.

	X	A	B	C	D	E	F	G	H	I	J	K
	9	3	4	6	11	15	16	15	11	6	4	4
	8	3	4	6	18	31	33	31	18	6	4	3
	7	2	3	3						3	3	2
	6	2	3	5	16	28	30	28	16	5	3	2
Vert.	5	2	2	4	6	8	9	8	6	4	3	2
	4	2	2	3	3	4	4	4	4	3	2	2
	3	2	2	2	3	3	3	3	3	2	2	2
	2	1	2	2	2	2	2	2	2	2	2	1
	1	1	2	2	2	2	2	2	2	2	2	1
	Y											
	1	6	7	8	9	10	10	10	9	8	6	5
	2	6	7	8	10	11	11	11	10	9	7	6
	3	6	7	8	10	11	11	11	10	9	7	7
	4	7	7	8	10	11	11	11	10	9	8	7
	5	6	7	8	9	10	10	10	9	9	7	7
Horiz.	6	6	7	7	9	9	9	9	9	8	7	6
	7	5	6	6	7	7	7	7	7	7	6	5
	8	5	5	6	6	7	7	7	6	6	5	5
	9	5	5	5	6	6	6	6	6	6	5	5
	10	4	4	4	4	5	5	5	4	4	4	4
	11	3	3	4	4	4	4	4	4	4	3	3
	12	3	3	3	4	4	4	4	4	4	3	3
	13	2	2	3	3	3	3	3	3	3	2	2



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F7

Lithonia Lighting

LQM EL N

LITHONIA LIGHTING®

Catalog Number	
Notes	Type

Thermoplastic Exits

LQM EL N

LED Lamps
Emergency Operation
Nickel-Cadmium Battery

QUANTUM®

FEATURES

INTENDED USE

Ideal for applications requiring attractive, quick-installation exit signs and low energy consumption.

CONSTRUCTION

Engineering-grade thermoplastic housing is impact-resistant, scratch-resistant, and corrosion-proof. UL94V-0 flame rating. UV-stable resin resists discoloration from natural and man-made light sources.

Rugged unibody housing snaps together with no additional mechanical fasteners. Faceplate and back cover are interchangeable on housing. Positive snap-fit tabs hold faceplate securely, yet pry out easily for lamp compartment access.

Universal directional chevron inserts are easily removed and reinserted. Uniform graphics illumination without shadows or hot spots. Reinforced, impact-resistant color panels. Letters 6" high with 3/4" stroke.

U.S. Patent No. 5,526,251, 5,611,163, 5,739,639, 5,954,423 and 6,502,044. Canada Patent No. 2,204,218. Other patents pending.

LAMPS

LEDs mounted on printed circuit boards. Expected LED life over 25 years. Low energy consumption – less than one watt. LED lamp operates in normal (AC input) and emergency (DC input) modes.

BATTERY

Sealed, maintenance-free nickel-cadmium battery delivers 90-minute capacity to emergency lamps. Automatic recharge after battery discharge.

Low-voltage disconnect prevents excessively deep discharge that can permanently damage battery. Conveniently located test switch and LED provide visual and manual means of monitoring system operation.

ELECTRONICS

Constant-current series charger minimizes energy consumption and provides low operating costs. Printed circuit boards are 100% quality tested during manufacturing. Current-limiting charger circuitry protects printed circuit boards from shorts.

DIAGNOSTICS (SD option only)

Two-state constant-current charger maximizes battery life and automatically recharges after battery discharge. Low voltage disconnect prevents excessive deep discharge that can permanently damage the battery. AC/LVD reset (line latch) allows battery connection before AC power is applied and prevents battery damage from deep discharge.

Single-point microcomputer control for all electronic features.

Crystal oscillator timing system with watchdog protection for precision accuracy.

Brownout protection is automatically switched to emergency mode when supply voltage drops below 80% of nominal.

Single multi-chromatic LED indicator to display two-state charging, test activation and three-state diagnostic status.

Test switch provides manual activation of 30-second diagnostic testing for on-demand visual inspection. Self-diagnostic testing for five minutes every 30 days and 30 minutes every six months.

Diagnostic evaluation of LED light source, AC to DC transfer, charging and battery condition.

Continuously monitors AC functionality.

INSTALLATION

Universal (top-, end-, or back-) mounting. Easily removed mounting knockouts. J-box pattern on back panel. Housing snaps to canopy with four positive-locking tabs. Cam-locking pin tightly secures housing to canopy.

LISTING

UL listed (standard). NOM Certified (see Options). Meets UL924, NFPA 101 (current Life Safety Code), NEC and OSHA illumination standards, and State of Minnesota energy-efficient legislation requiring less than 20W consumption.

WARRANTY

Three-year total customer satisfaction warranty, including the LED lamps. For details, see the Product Selection Guide.

ORDERING INFORMATION

Example: **LQM S W 3 R 120/277 EL N**

Choose the boldface catalog nomenclature that best suits your needs and write it on the appropriate line. Order accessories as separate catalog number.

LQM					120/277	EL N	
Family	**Face type**	**Housing color**	**Number of faces**	**Letter color**	**Input voltage[3]**	**Emergency operation**	**Options[1]**
LQM LED	**S** Stencil	(blank) Black	**1** Single face[9]	**R** Red	**120/277** Dual voltage	**EL N** Nickel-cadmium battery	(blank) None
	A Aluminum appearance stencil[1]	**W** White	**3** Single face with extra faceplate and color panel	**G** Green			**F** Flashing emergency operation (one flash/sec)[1,5,8]
	P Panel[1,2]						**FI** Fire alarm flashing interface[1,5]
							FA Flashing emergency operation and intermittent audible alarm (one flash/sec)[1,5]
							SALIDA Salida signage[1,6,7]
							NOM NOM Certified for Mexico[1,8]
							DL Damp location[1,8]
							SD Self-diagnostics[1]

NOTES:
1. See back of spec sheet for special housing dimensions. Consult factory for compatible accessories.
2. Special wording available in red or green. Consult factory.
3. Some special voltages available. Consult factory.
4. Only available with SD options.
5. Choice of F, FA or FI. Not available with more than one.
6. Not available with Aluminum (A) face type.
7. Letters 6" high with 7/16" stroke.
8. Not available with SD.
9. Only available with options.

Accessories

Order as separate item.

ELA WGEX Back-mount wireguard
ELA WGEXT Top-mount wireguard
ELA WGEXE End-mount wireguard

LQM EL N Emergency LED, Quantum

SPECIFICATIONS

ELECTRICAL

Primary Circuit

Type[1]	Rated LED life[2]	Supply voltage	Input watts	Max. amps
Red LED	25+ years	120	.71	.05
		277	.92	.06
Green LED	25+ years	120	.66	.05
		277	.70	.06

BATTERY

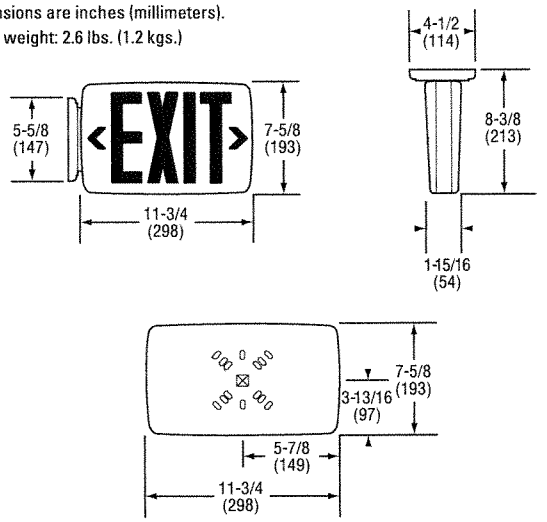
Nickel-Cadmium

Voltage	Shelf life[3]	Expected life[3]	Maintenance	Optimum temperature[5]
1.2[6]	3 yrs.	7–9 yrs.	none[4]	32°–100°F (0°–37.8°C)

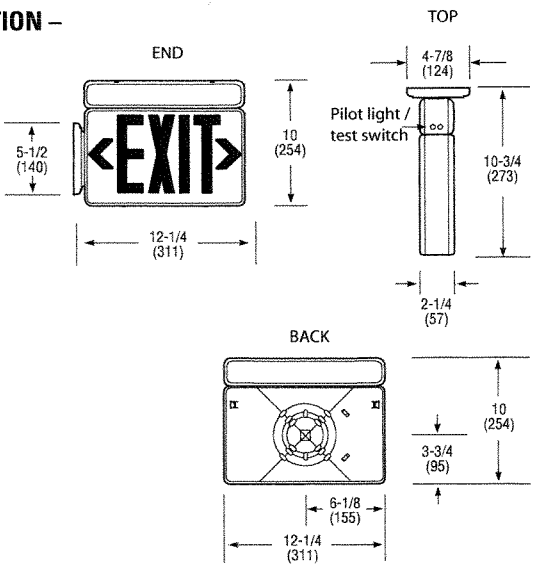
1 LED lamps operate in normal (AC input) and emergency (DC input) modes.
2 Based on continuous operation.
3 At 77°F (25°C).
4 Periodic system status test recommended.
5 Optimum ambient temperature range where unit will provide capacity for 90 minutes. Higher and lower temperatures affect life and capacity. Consult factory for detailed information.
6 2.4 Volts for DL option.

MOUNTING

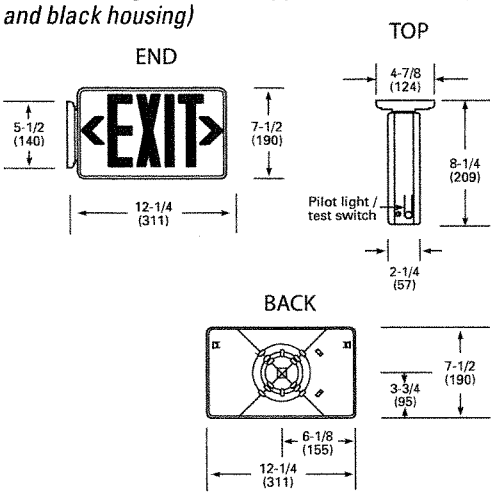
All dimensions are inches (millimeters).
Shipping weight: 2.6 lbs. (1.2 kgs.)



SD OPTION –



With Options –*(Including: aluminum appearance stencil, panel faceplates and black housing)*



LITHONIA LIGHTING®
An AcuityBrands Company

Sheet #: LQM-EL-N

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F8

Lithonia Lighting

UNS-RS

LITHONIA LIGHTING®

Catalog Number	
Notes	Type

FEATURES & SPECIFICATIONS

INTENDED USE

Ideal where high brightness and high illumination levels are required such as retail, industrial and warehouse applications.

ATTRIBUTES

Fixtures assembled with snap and screwed together components. Available in a variety of lengths and lamp configurations. Gripper-back design for superior strength and rigidity.

CONSTRUCTION

Heavy-duty channel, die-formed cold-rolled steel.

Sturdy channel cover secured by quarter-turn latch for tool-less access to wireway. Screw-on endplates.

FINISH

Five-stage iron-phosphate pretreatment ensures superior paint adhesion and rust resistance. Finish is high-gloss baked white enamel.

ELECTRICAL SYSTEM

Thermally protected, resetting, Class P, HPF, UL listed, CSA Certified ballast is standard. Energy saving and electronic ballasts are sound rated A.

Fixture is suitable for damp locations. AWM, TFN or THHN wire used throughout, rated for required temperatures.

INSTALLATION

For unit or row installation, surface or suspended mounting. Channel connector furnished standard.

LISTING

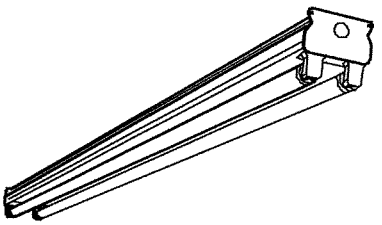
120V, 277V and MVOLT are UL Listed and CSA Certified (standard). 347V is CSA Certified (see Options). NOM Certified (see Options).

WARRANTY

Guaranteed for one year against mechanical defects in manufacture.

Heavy-Duty Strip

UNS

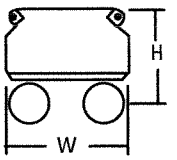


Rapid Start
2', 3', 4' or 8' length
1 or 2 lamps

Specifications

Length: 24" (610), 36" (914), 48" (1219) or 96" (2438)
Width: 4-3/8" (111)
Height: 3" (76)

All dimensions are inches (millimeters).
Specifications subject to change without notice.



ORDERING INFORMATION

Example: **UNS 2 32 120 GEB**

Choose the boldface catalog nomenclature that best suits your needs and write it on the appropriate line. Order accessories as separate catalog number.

Series

UNS Heavy-duty strip

For tandem double-length unit, add prefix **T**. Example: **TUNS**

Lamps

1 or 2

Not included.

Lamp Type

17 17W T8 (24")
20 20W T12 (24")
25 25W T8 (36")
30 30W T12 (36")
30 30W RS T12 (36")
32 32W T8 (48")
40 40W T12 (48")

Voltage

120
277
347
MVOLT[1]

Options

Shipped installed in fixture

ES T12 Energy-savings ballast (30W or 40W lamps only)
GEB T8 electronic ballast, ≤20% THD, Instant Start
GEB10IS T8 Electronic ballast, ≤10% THD, Instant Start
GEB10RS T8 Electronic ballasts, 10% THD, Rapid Start
EL Emergency battery pack (nominal 300 lumens), see Life Safety Section
GLR Internal fast-blow fusing
GMF Internal slow-blow fusing
PLF_ Plug-in wiring, Specify 1, 2 or 3 branch circuits & hot wires (**A** = black, **B** = red, **C** = blue, **AB** or **AC**)
TILW Tandem in-line wiring
CSA CSA Certified (347V only)
NOM NOM Certified

Accessories

Order as separate catalog number.

SQ_ Swivel stem hanger (specify length in 2" increments)
1B Ceiling spacer (1-1/2" to 2-1/2" from ceiling)
HC36 Chain hangers (1 pair, 36" long)
THUN Tong hanger
HRUNS1 Hooker® T-bar hanger (1-1/2" from ceiling)
CSMR48 Symmetric reflector, 4' white
CASR48 Asymmetric reflector 4' white
WGCUN Wireguard, 4' white[2]

NOTES
1 Electronic ballast 120-277V. Must specify GEB10IS.
2 Order two for 8' fixtures. For strip channels only.

UNS Rapid Start

MOUNTING DATA

For unit or row installation, surface or suspended mounting. Use hanger appropriate for fixture width.

Unit installation — Minimum of two hangers required.

Row installation — One hanger per channel plus one per row required.

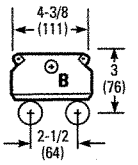
Hooker® (HRUNS1), HC36 and THUN Hangers — Minimum two per channel (unit and row).

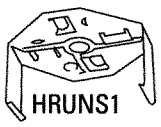
See ACCESSORIES below for hanging devices.

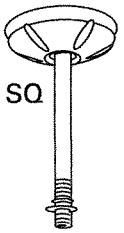
DIMENSIONS

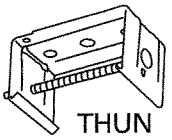
Inches (millimeters). Subject to change without notice.

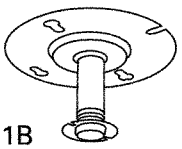
A = 11/16 (18) Dia. K.O.
B = 7/8 (22) Dia. K.O.
C = 2 (51) Dia. K.O.

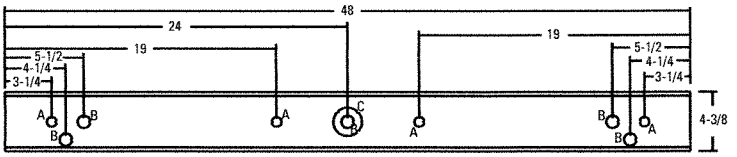


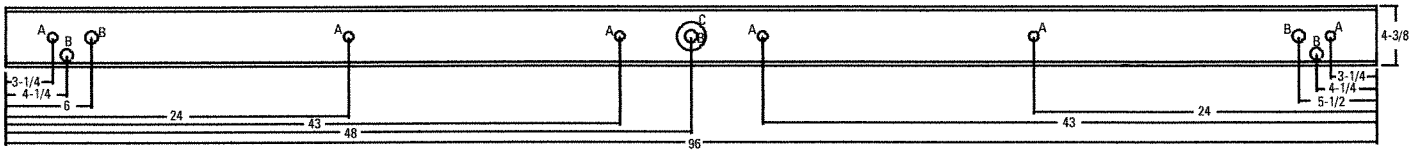












PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical. All data based on 25°C. Full photometric data on these and other configurations available upon request.

UNS 2 32
Report: **LTL12571**
LUMENS PER LAMP:**2900**
Luminaire Efficiency: 92.8%

Coefficients of Utilization

pf	20%								
pc	80%			50%			30%		
RCR pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
0	106	106	106	93	93	93	86	86	86
1	94	89	84	78	74	71	71	68	66
2	84	76	68	66	61	56	60	56	52
3	76	65	57	57	51	45	52	47	42
4	69	57	48	50	43	38	46	40	35
5	63	51	42	44	37	32	41	35	30
6	58	45	36	40	33	28	37	31	26
7	54	41	32	36	29	24	33	27	23
8	50	37	29	33	26	21	30	24	20
9	46	34	26	30	23	19	28	22	18
10	43	31	23	28	21	17	26	20	16

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	842	14.5	15.6
0° - 40°	1436	24.8	26.7
0° - 60°	2810	48.4	52.2
0° - 90°	4363	75.2	81.0
90° - 180°	1021	17.6	19.0
0° - 180°	5384	92.8	100.0

UNS 1 32
Report: **LTL12570**
LUMENS PER LAMP:**3050**
Luminaire Efficiency: 93.3%

Coefficients of Utilization

pf	20%								
pc	80%			50%			30%		
RCR pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
0	108	108	108	95	95	95	88	88	88
1	94	89	83	78	74	71	72	69	66
2	85	75	68	66	61	56	61	56	52
3	76	65	56	57	51	45	53	47	42
4	69	57	48	50	43	38	46	40	35
5	63	50	41	45	37	32	41	35	30
6	58	45	36	40	33	27	37	31	26
7	54	41	32	36	29	24	34	27	23
8	50	37	28	33	26	21	31	25	20
9	47	34	26	30	24	19	28	22	18
10	44	31	23	28	21	17	26	20	16

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	455	14.9	16.0
0° - 40°	770	25.3	27.1
0° - 60°	1490	48.8	52.4
0° - 90°	2393	78.5	84.1
90° - 180°	452	14.8	15.9
0° - 180°	2846	93.3	100.0

UNS 2 40
Report: **LTL12574**
LUMENS PER LAMP:**3200**
Luminaire Efficiency: 90.0%

Coefficients of Utilization

pf	20%								
pc	80%			50%			30%		
RCR pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
0	103	103	103	90	90	90	82	82	82
1	91	86	82	75	72	69	68	66	63
2	82	74	67	64	59	54	58	54	50
3	74	64	56	55	49	44	50	45	41
4	67	56	47	49	42	37	44	39	35
5	62	49	41	43	37	31	39	34	29
6	57	44	36	39	32	27	35	30	25
7	52	40	31	35	28	24	32	26	22
8	48	36	28	32	25	21	29	24	20
9	45	33	25	29	23	19	27	21	18
10	42	30	23	27	21	17	25	19	16

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	907	14.2	15.7
0° - 40°	1545	24.1	26.8
0° - 60°	3019	47.2	52.4
0° - 90°	4586	71.6	79.6
90° - 180°	1175	18.4	20.4
0° - 180°	5760	90.0	100.0

LITHONIA LIGHTING®
An AcuityBrands Company

Lithonia Lighting
Aquity Lighting Group, Inc.
Fluorescent
One Lithonia Way, Conyers, GA 30012
Phone: 770-922-9000, 800-858-7763, Fax: 770-929-8789
In Canada: 160 avenue Labosse, Point-Claire, P.Q. H9R 1A1
www.lithonia.com

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F9

Lithonia Lighting

AF-RS

LITHONIA LIGHTING®

Catalog Number	
Notes	Type

FEATURES & SPECIFICATIONS

INTENDED USE

For applications that require medium to high light levels such as manufacturing, warehousing, storage, retail or task lighting. Ideal for mounting heights up to 25'.

ATTRIBUTES

Heavy-duty design for demanding industrial environments. Pressure-lock lampholders enclosed in snap-in turret housing. Available in 4' or 8' lengths. 6" lamp spacing of 2-lamp models, 3" lamp spacing on 3-lamp models. Solid top, 10% or 20% uplight reflectors available, painted after fabrication.

CONSTRUCTION

Die-embossed reflector constructed of heavy gauge cold-rolled steel. White enamel reflector finish standard, porcelain finish optional.

FINISH

Five-stage iron-phosphate pretreatment ensures superior paint adhesion and rust resistance. Finish is high-gloss baked white enamel.

ELECTRICAL SYSTEM

Thermally protected, resetting, Class P, HPF, UL listed, CSA Certified ballast is standard. Energy saving and electronic ballasts are sound rated A.

Fixture is suitable for damp locations. AWM, TFN or THHN wire used throughout, rated for required temperatures.

INSTALLATION

For surface or suspended mounting, unit or row installation.

LISTING

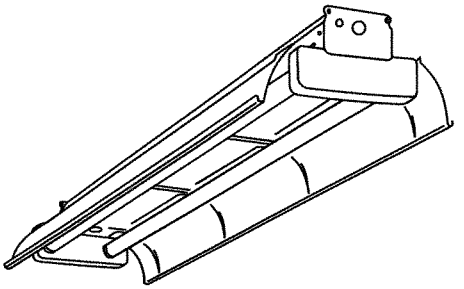
120V, 277V and MVOLT are UL Listed and CSA Certified (standard). 347V is CSA Certified (see Options). NOM Certified (see Options).

WARRANTY

Guaranteed for one year against mechanical defects in manufacture.

Heavy-Duty Turret Industrial

AF



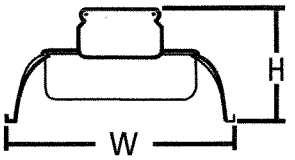
Rapid Start

4' or 8' lengths
1, 2, 3 or 4 lamps

Specifications

Length: 49-13/16" (1265) or 99-5/8" (2530)
Width: 13-3/8" (340)
Height: 6-5/8" (168)

All dimensions are inches (millimeters). Specifications subject to change without notice.



ORDERING INFORMATION

Choose the boldface catalog nomenclature that best suits your needs and write it on the appropriate line. Order accessories as separate catalog number.

Example: **AF10 3 32 277 1/3 GEB**

Series	Lamps	Lamp Type	Voltage	Options
AFST Solid reflector	**1, 2, 3, 4**	**32** 32W T8 (48")	**120**	**Shipped installed in fixture**
AF10 10% uplight apertured reflector	*Not included.*	**40** 40W T12 (48")	**277**	**1/3** One 3-lamp ballast (32 watt electronic ballast only)
AF 20% uplight apertured reflector			**347**	**1/4** One 4-lamp ballast (32 watt electronic ballast only)
For tandem double-length unit, add prefix **T**.			**MVOLT**[2]	**ES** T12 Energy-savings ballast (40W lamps only)
Example: **TAF10**				**GEB** T8 Electronic ballast, ≤20% THD
				GEB10IS T8 Electronic ballast, ≤10% THD, Instant Start[1]
				GEB10RS T8 Electronic ballasts, 10% THD, Rapid Start
				EL Emergency battery pack (nominal 300 lumens), see Life Safety Section
				GLR Internal fast-blow fusing (add **X** for external)
				GMF Internal slow-blow fusing (add **X** for external)
				PLF_ Plug-in wiring, Specify 1, 2 or 3 branch circuits & hot wires (**A** = black, **B** = red, **C** = blue, **AB** or **AC**)
				TILW Tandem in-line wiring
				PO White porcelain reflector finish
				CSA CSA Certified (347V only)
				NOM NOM Certified

Accessories

Order as separate catalog number.

ACEP Full-depth endplates (1 pair)
HRUN Hooker® T-bar hanger for 5" channel (flush to ceiling)
HRUN1 Hooker® T-bar hanger for 5" channel (1-1/2" from ceiling)
SQ_ Swivel stem hanger (specify length in 2" increments)
1B Ceiling spacer (1-1/2" to 2-1/2" from ceiling)
HC36 Chain hangers (1 pair, 36" long)
THUN Tong hanger for 5" channel
WGAFPV Wireguard, 4' white (order 2 for 8' fixtures)[3]
DLAF ME 4' 30° x 30° metal eggcrate louver[3]
DLAF A12 4' framed acrylic prismatic lens[3]

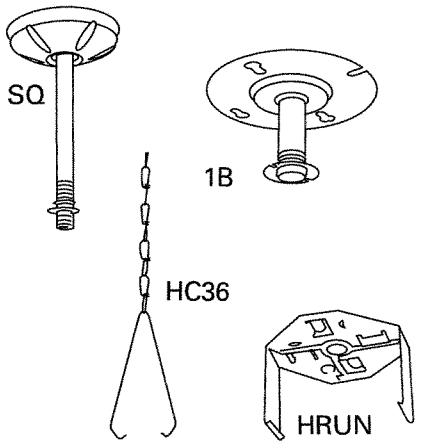
NOTES
1 Available only with 32 lamp type.
2 Electronic ballast 120 through 277 volt only. Available with 32 watt T8 only. MVOLT must specify GEB10IS.
3 Order 2 for 8' fixtures.

MOUNTING DATA

For unit or row installation. Surface or stem mounting.[1]

UNIT INSTALLATION — Minimum of two hangers required.

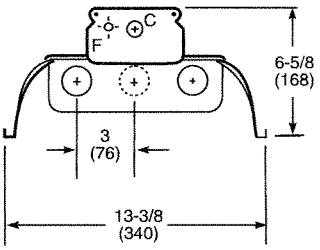
ROW INSTALLATION — One hanger per fixture plus one per row required.

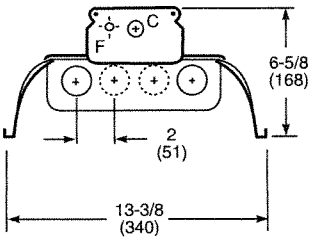


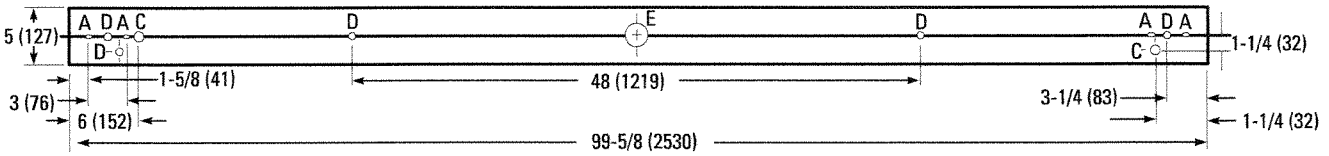
DIMENSIONS

All dimensions are inches (millimeters) . Specifications subject to change without notice.

A = 1/4 x 1/2 (64 x 13) Oval Hole
C = 7/8 (22) Dia.K.O.
D = 11/16 (17) Dia. K.O.
E = 2 (51) Dia. K.O.
F = 7/16 (111) Dia. K.O.



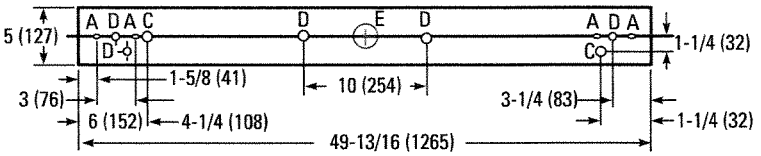




Energy (Calculated in accordance with NEMA standard LE-5)

LER.FW	ANNUAL ENERGY COST*	LAMP DESCRIPTION	LAMP LUMENS	BALLAST FACTOR	WATTS
74	$3.24	(2) F32T8	2800	.88	60

*Calculated in accordance with NEMA Standards LE-5.



PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical. All data based on 25°C. Full photometric data on these and other configurations available upon request.

AFST 2 40
Report ITL 18286
S/MH 1.4

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
1	93	89	86	91	88	84	84	81	79
2	85	79	73	83	77	72	74	70	66
3	78	69	63	76	68	62	66	60	56
4	72	62	54	70	60	54	58	52	48
5	65	54	47	63	53	46	51	45	40
10	43	32	25	42	31	24	30	24	20

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	1415	22.1	25.9
0-40	2377	37.1	43.5
0-60	4251	66.4	77.8
0-90	5424	84.7	99.3
90-180	39	0.6	0.7
0-180	5463	85.4	100.0

AF 2 32
Report ITL 5711
S/MH 1.4

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
1	94	90	86	90	86	83	79	76	74
2	86	79	73	82	75	70	69	65	61
3	78	69	62	74	66	60	61	56	52
4	72	61	54	68	59	52	54	48	44
5	65	54	46	62	52	44	48	41	37
10	43	31	24	41	30	23	28	22	18

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	998	17.2	19.0
0-40	1677	28.9	31.9
0-60	3126	53.9	59.6
0-90	4074	70.2	77.6
90-180	1175	20.3	22.4
0-180	5249	90.5	100.0

AF 2 40
Report ITL 18288
S/MH 1.5

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
1	93	89	85	88	85	81	77	75	72
2	84	78	72	80	74	69	68	64	60
3	77	68	62	73	65	59	60	55	51
4	70	60	53	67	58	51	53	48	43
5	64	53	46	61	51	44	47	41	37
10	43	31	24	40	30	23	27	22	18

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	1099	17.2	19.3
0-40	1862	29.1	32.7
0-60	3414	53.4	60.0
0-90	4397	68.7	77.3
90-180	1291	20.2	22.7
0-180	5689	88.9	100.0

LITHONIA LIGHTING®
An AcuityBrands Company

Lithonia Lighting
Acuity Lighting Group, Inc.
Fluorescent
One Lithonia Way, Conyers, GA 30012-3957
Phone: 800-858-7763 Fax: 770-929-8789
In Canada: 160 avenue Labrosse, Point-Claire, P.Q., H9R 1A1
www.lithonia.com

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F9HO

Lithonia Lighting

AFP

LITHONIA LIGHTING

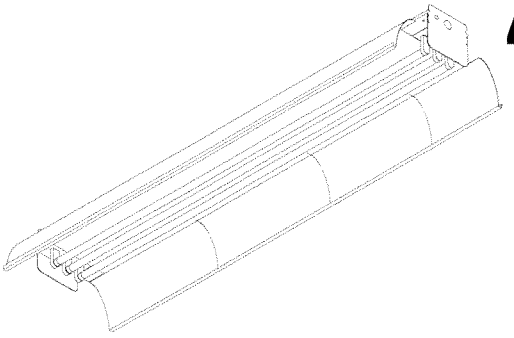
Catalog Number	
Notes	Type

FEATURES & SPECIFICATIONS

Heavy-Duty Industrial

AFP

High Output
4' or 8' Length
1, 2, or 3 Lamps



T5 Technology

INTENDED USE
Intended for mounting heights up to 25' that require high light levels. Ideal for the medium to heavy-duty areas, warehousing, storage or task lighting.

CONSTRUCTION
Channel and embossed reflector constructed of die-formed cold rolled steel with longitudinal V-grooves in the channel for strength. Rotor style, locking lampholders with enclosed contacts and an audible click are standard with deep endplates that exceed the height of the lampholders. Available in 4', or 8' tandem wired lengths. Accepts plug-in option for 1, 2 or 3 primary circuits.

FINISH
Five-stage iron phosphate pretreatment ensuring superior paint adhesion and corrosion-resistance. Reflector and channel to be finished with a high-gloss baked white enamel. Reflector is painted after fabrication.

OPTICAL SYSTEM
Solid-top or apertured uplight reflector is die-embossed, constructed of heavy-gauge cold rolled steel and painted after fabrication. Baked white enamel finish standard, porcelain is available.

ELECTRICAL SYSTEM
Thermally protected, resetting, Class P, HPF, non-PCB, UL listed, CSA certified ballast standard. Sound rating depends on lamp/ballast combination. AWM, TFN and THHN wire used throughout, rated for required temperatures.

INSTALLATION
For unit or row installations, surface or suspended mounting.

LISTING
UL Listed (standard). CSA Certified or NOM Certified (see Options). UL Listed for damp locations.

Specifications

AFP HO

Length: 48" (121.9)
Width: 13-3/8" (33.97)
Depth: 6-5/8" (16.82)
Weight: 16.3lbs / 7.4kg

All dimensions are inches (millimeters).

ORDERING INFORMATION

Example: **AFP 2 54T5HO 120 GEB**

Series	Number of Lamps	Lamp Type	Voltage
AFPST Solid reflector **AFP** 10% uplight apertured reflector For tandem double-length unit, add prefix **T**. Example: **TAFPST**	**1, 2, 3**[1] Not included	**48T8HO** 44W 300mA T8 (48") **54T5HO** 54W T5 (46") **96T8** 59W T8 Slimline (96")	**120, 277, 347, MVOLT** Others available

Options

ES	Energy-saving ballasts (296 ballasts only)
GEB	Electronic ballasts, ≤20% THD
GEB10	Electronic ballasts, ≤10% THD
GEB10PS	Electronic ballasts, ≤10% THD, program start
CW	Cold weather ballasts, 0ºF starting
EL14	Emergency battery pack (nominal 1400 lumens). See Life Safety Section.
EL55	Emergency battery pack (nominal 390-700 lumens). See Fluorescent Battery Pack Section.
GLR	Internal fast-blow fuse (add **X** for external)
GMF	Internal slow-blow fuse (add **X** for external)
CS1	6' cordset, NEMA 5-15P SJT, U-ground plug, 120V
CS7	6' cordset, NEMA 5-15P SJT, U-ground plug, 277V
CS3	6' cordset, NEMA L5-15P SJT, twist-lock plug, 120V.
CS11	6' cordset, NEMA L5-15P SJT, twist-lock plug, 277V
PLF_	Plug-in wiring. Specify 1, 2 or 3 branch circuits & hot wires (**A**=Black, **B**=Red, **C**=Blue, **AB** or **AC**)
TILW	Tandem in-line wiring
PO	White porcelain reflector finish
SSR	Specular silver reflector finish (95% reflective).
CSA	CSA Certified
NOM	NOM Certified
SW	Palletized and stretch-wrapped.
JP	Job palletized without individual cartons.

Accessories

Order as separate catalog number.

ACEP	Full-depth endplates (1 pair)
HRUN	Hooker® T-bar hanger for 5" channel (flush to ceiling)
HRUN1	Hooker® T-bar hanger for 5" channel (1-1/2" from ceiling)
SQ_	Swivel-stem hanger (specify length in 2" increments)
1B	Ceiling spacer (adjusts from 1-1/2" to 2-1/2" from ceiling)
HC36	Chain hangers (1 pair, 36" long)
THUN	Tong hanger for 5" channel
WGAFPV	Wireguard, 4' white, for AF or PV (order 2 for 8' fixtures)
DLAF ME	4' 30°x 30° metal eggcrate louver (order 2 for 8' fixtures)
DLAF A12	4' framed acrylic prismatic lens, (order 2 for 8' fixtures)

NOTES:
1 T5 and T8 lamps only.

MOUNTING DATA

For unit or row installation. Surface or suspended mounting.

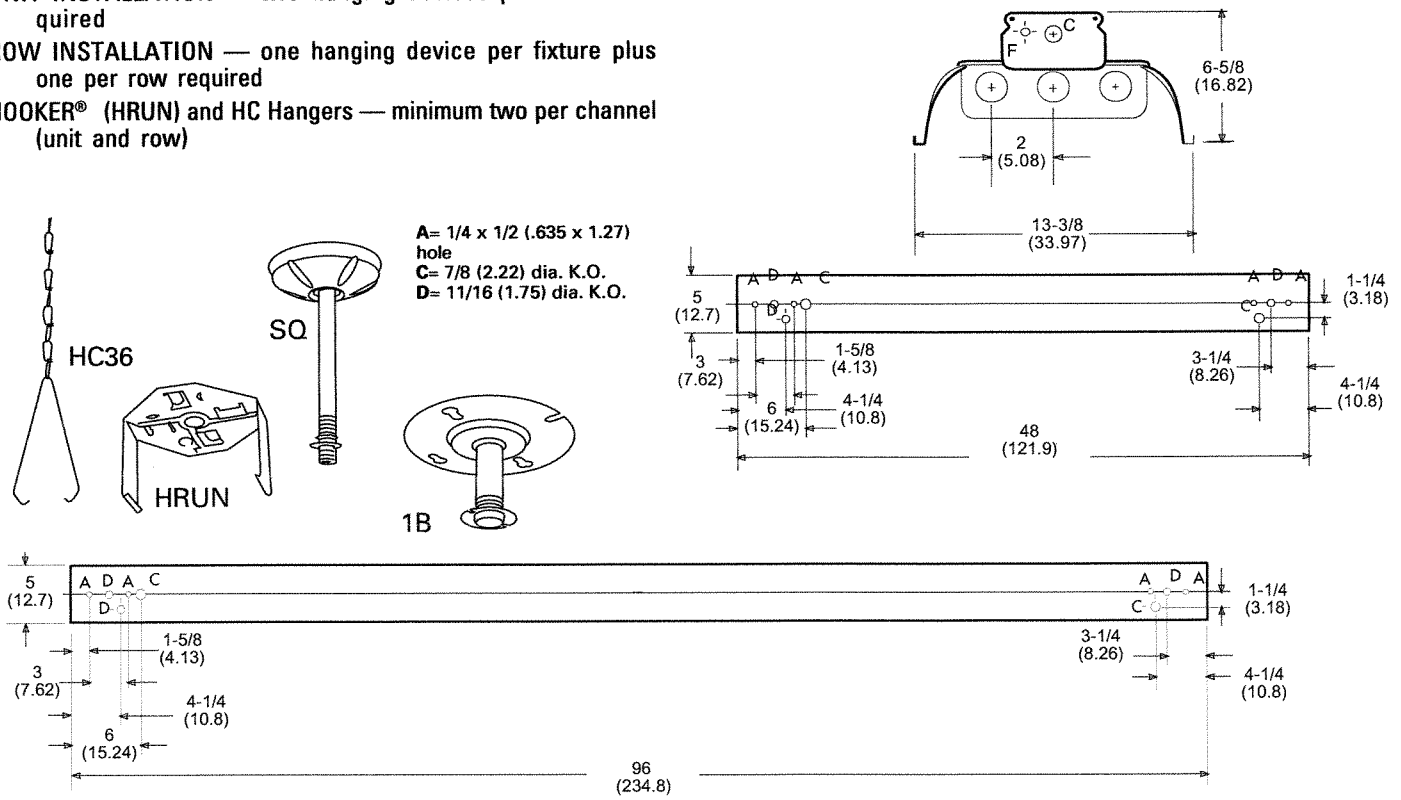
UNIT INSTALLATION — two hanging devices per fixture required

ROW INSTALLATION — one hanging device per fixture plus one per row required

HOOKER® (HRUN) and HC Hangers — minimum two per channel (unit and row)

DIMENSIONS

Inches (centimeters). Subject to change without notice.



PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical. Full photometric data on these and other configurations available upon request.

AFPST 2 54T5HO Test No. LTL 9790

COEFFICIENT OF UTILIZATION

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
1	116	116	116	113	113	113	108	108	108
2	105	100	96	103	98	94	94	91	88
3	87	76	68	93	85	79	82	76	72
4	79	67	58	77	66	57	63	56	50
5	72	60	51	70	58	50	56	49	43
10	50	37	29	49	36	29	35	28	24

ZONAL LUMENS SUMMARY

Zone	Lumens	%Lamp	%Fixture
0-30	2119	23.8	24.5
0-40	3563	40.0	41.2
0-60	6694	75.2	77.5
0-90	8639	97.1	100.0
90-180	0.0	0.0	0.0
0-180	8639	97.1	100.0

AFP 2 54T5HO Test No. LTL 9791

COEFFICIENT OF UTILIZATION

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
1	104	99	95	100	96	92	89	86	83
2	94	86	79	90	83	77	77	72	68
3	85	75	66	82	72	65	68	61	56
4	78	66	57	74	64	55	60	53	47
5	71	58	49	68	56	48	56	46	40
10	49	36	28	47	35	27	33	26	22

ZONAL LUMENS SUMMARY

Zone	Lumens	%Lamp	%Fixture
0-30	1801	20.2	20.6
0-40	3064	34.4	35.1
0-60	5909	66.4	67.6
0-90	7727	86.8	88.4
90-180	1015	11.4	11.6
0-180	8742	98.2	100.0

Energy (Calculated in accordance with NEMA Standard LE-5)

	LER.FL	ANNUAL* ENERGY COST	LAMP DESCRIPTION	LAMP LUMENS	BALLAST FACTOR	WATTS
High Output T5	72	$3.31	F54T5HO	4,450	1	117

*Based on 3000 hrs./year at .08/kwh

LITHONIA LIGHTING
An AcuityBrands Company

Lithonia Lighting
Acuity Lighting Group, Inc.
Fluorescent Lighting
One Lithonia Way, Conyers, GA 30012
Phone: 800-315-4693, Fax: 770-602-1531
In Canada: 1100 50th Ave., Lachine, Quebec H8T 2V3
www.lithonia.com

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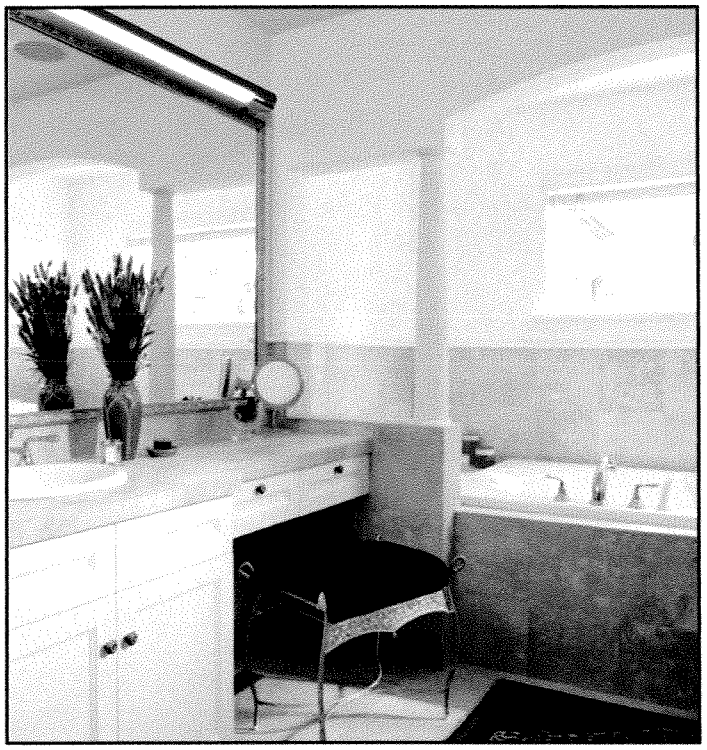
F10

Alkco

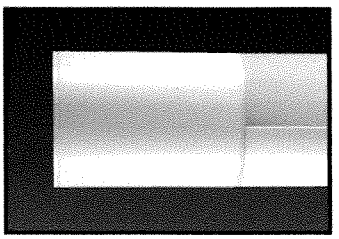
B1.3

TABLEAU™
LINEAR ADJUSTABLE FLUORESCENT TAB SERIES

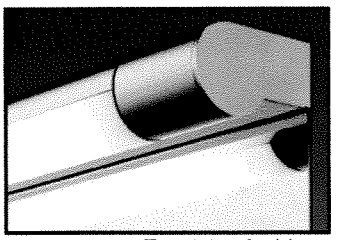


Brushed Aluminum

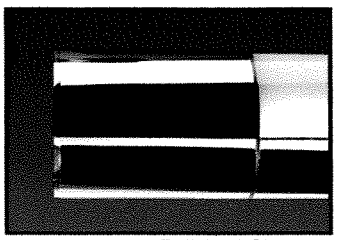
- Elegant styling, energy efficient lamping and durable construction make Tableau ideal for bathroom and task light applications in hotels, dormitories, offices and hospitals.
- Tableau can also be mounted on ceilings to provide vertical illumination on walls, art or message boards.
- Smooth, low glare opal diffuser or clear linear prism lens rotates to direct light as needed.
- Tri-phosphor T8, T5 or High Output T5 lamps included.
- Premium electronic ballast with soft-start circuit maximizes lamp life and provides flicker-free-performance.



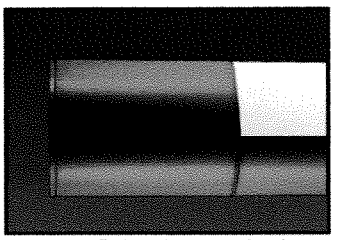
Painted White



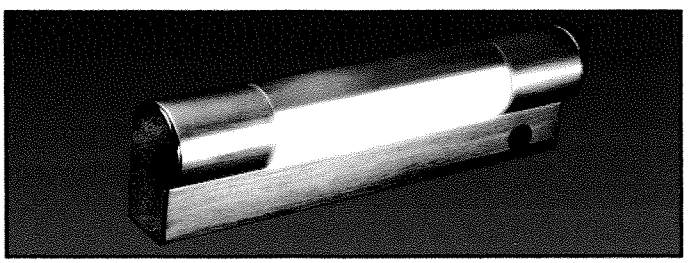
Top right of tableau



Polished Chrome

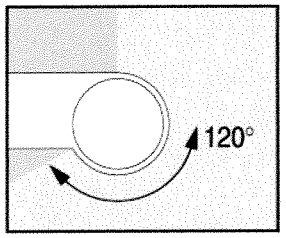


Painted matte aluminum

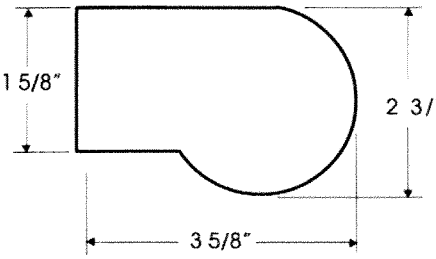


TAB 126 in Brushed Aluminum

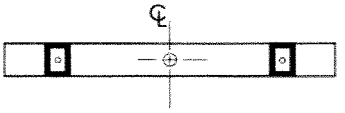
TABLEAU™
LINEAR ADJUSTABLE FLUORESCENT TAB SERIES



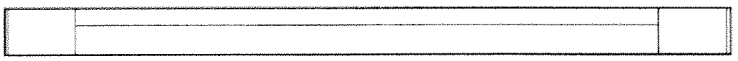
120 degree lamp housing rotation

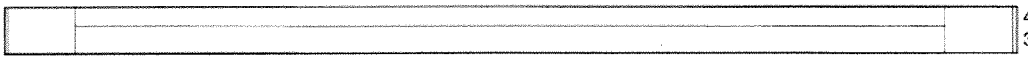


MOUNTING PLATE DETAIL



7/8" knock out (7 3/32" to left of center on TAB117, 114 & 124, as you face installation location).


29 5/8" for T8
27 5/8" for T5


41 5/8" for T8
39 7/16" for T5

53 11/16" for T8
51 1/4" for T5

SPECIFICATIONS

CONSTRUCTION
.090 extruded aluminum housing with die-cast metal ends.

DIFFUSER
Snap-in translucent opal acrylic diffuser standard, with clear linear prism acrylic diffuser optional.

FINISHES
Fixtures may be specified with a variety of painted, anodized or plated finishes.

ELECTRICAL
Premium grade high frequency electronic ballast with pre-heat start circuit to facilitate long lamp life with frequent on-off operation. Lamps start in less than 1 second without flicker. Rocker switch is supplied as standard equipment (no switch supplied with 277 volt option).

LAMPS
One CFQ (26 watt, supplied by others), T8 (17, 25, or 32 watt), T5 (14, 21 or 28 watt) or High Output T5 (24, 39 or 54 watt) 3000K tri-phosphor fluorescent lamp included (CFQ lamp must be supplied by others). 3500K and 4100K tri-phosphor lamps available in place of standard 3000K.

INSTALLATION FEATURES
Rear mounting plate secures to wall. Fixture snaps onto mounting plate and locks into position with 2 screws. 7/8" knockout in mounting plate, per diagram above, for attaching trade-size electrical fitting.

LABELS
U.L. CUL Damp

ORDERING INFORMATION

CATALOG #	LAMPS	L	W	D
CFQ				
TAB126-RSW	1/F26CFQ	13 1/4"	3 3/8"	3 3/8"
T8				
TAB117-RSW	1/F17T8	29 5/8"	2 3/16"	3 5/8"
TAB125-RSW	1/F25T8	41 5/8"	2 3/16"	3 5/8"
TAB132-RSW	1/F32T8	53 11/16"	2 3/16"	3 5/8"
T5				
TAB114-RSW	1/F14T5	27 5/8"	2 3/16"	3 5/8"
TAB121-RSW	1/F21T5	39 7/16"	2 3/16"	3 5/8"
TAB128-RSW	1/F28T5	51 1/64"	2 3/16"	3 5/8"
High Output T5				
TAB124-RSW	1/F24T5/HO	27 5/8"	2 3/16"	3 5/8"
TAB139-RSW	1/F39T5/HO	39 7/16"	2 3/16"	3 5/8"
TAB154-RSW	1/F54T5/HO	51 1/64"	2 3/16"	3 5/8"

Note: Specify lamp if other than standard 3000K (CFQ lamp supplied by others)

FINISHES (must add as suffix)	
/BA	Brushed Anodized Aluminum
/MA	Painted Matte Aluminum
/PC	Plated Polished Chrome
/PS	Anodized Polished Silver
/WH	Painted White

OPTIONS (must add as suffix)	
/CL	Clear Lens
/CO-W	Convenience Outlet (for 120 volt only)
/LESS SWITCH	Shipped less switch

Note: Consult factory for 277 volt availability (not available with RSW)

ELECTRICAL DATA

	17W T8	25W T8	32W T8	14W T5	21W T5	28W T5	24W T5/HO	39W T5/HO	54W T5/HO
Input Watts	24	31	35	18	25	33	28	41	64
Max. Amps	.21	.28	.32	.15	.21	.28	.23	.34	.54
Power Factor	.95	.92	.91	.98	.98	.98	.98	.98	.98
THD	‹20%	‹25%	‹15%	‹10%	‹10%	‹10%	‹10%	‹10%	‹10%

F11

Lithonia Lighting

FSSA ADJ

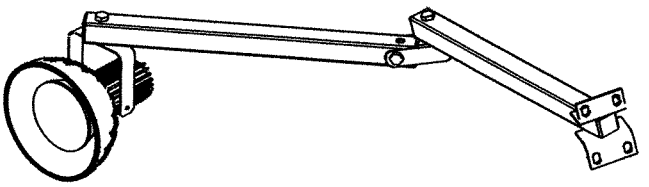
LITHONIA LIGHTING®

Catalog Number	
Notes	Type

Dock Lights

FSSA ADJ

Single-Strut Arm
Folding, Adjustable



FEATURES & SPECIFICATIONS

INTENDED USE

Illuminating the interior of tractor trailers during initial inspection, loading, or unloading.

FEATURES

Folding single-strut construction with adjustable knuckle joint provides maximum flexibility. Reinforcement brackets support the arm to allow for long service and no sagging or bending over time. High-impact polycarbonate lamp heads and heavy-gauge metal lamp heads are made to last and mount quickly.

CONSTRUCTION

Arms and struts are constructed of heavy-duty 1-½" cross-section, 14-gauge steel tubing. A knuckle joint allows for maximum adjustment and positioning. All hardware is corrosion resistant. Nuts are locking and exposed threads are plastic capped. Arm and strut ends are provided with injection-molded end caps. Hinged ends are reinforced internally with aluminum inserts. Electrical cord lengths are designed for easy adjustment and secured via grommets.

FINISH

Standard finish on the arm, struts and metal lamp head is safety-yellow polyester powder paint. Polycarbonate lamp heads are safety yellow.

OPTICAL SYSTEM

A polycarbonate lamp head is standard. All units are provided with a UL listed porcelain, medium-base socket with copper alloy screw shell and center contact.

ELECTRICAL SYSTEM

All units are 120V only. Reactor type ballasts are supplied for High Pressure Sodium lamps.

INSTALLATION

The arm and strut-mounting bracket is included. Arm assembly is attached via the bracket with one bolt. Lamp head attachment is made via a single bolt and electrified via a NEMA plug and receptacle assembly. The heavy-duty wall bracket is recommended for all fan/light combinations.

LISTING

UL Listed to US and Canadian safety standards.

ORDERING INFORMATION

Choose the boldface catalog nomenclature that best suits your needs and write it on the appropriate line. Order accessories as separate catalog number.

Example: **FSSA40 ADJ 150I**

ADJ

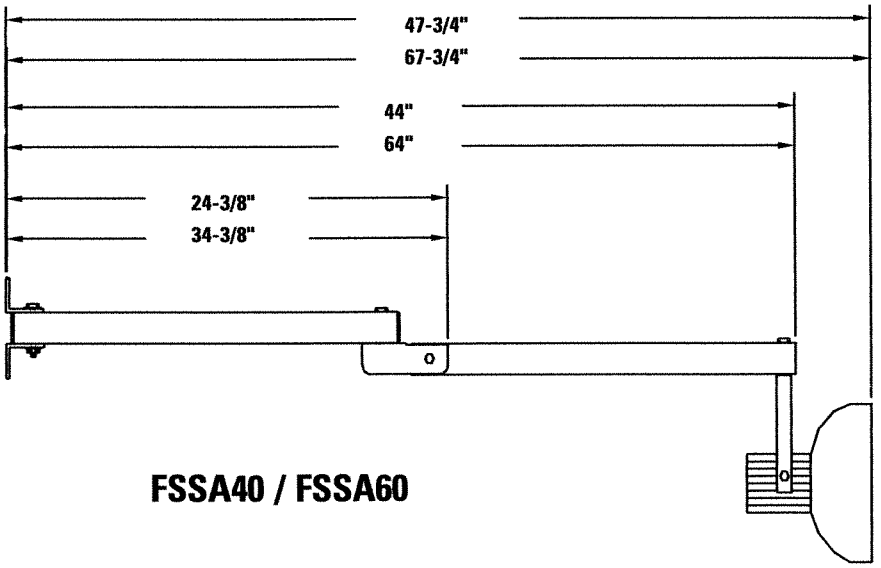
Series	Arm	Wattage	Options
FSSA40 Folding Single-Strut Arm, 40" length	**ADJ** Adjustable arm	**150I**	**SED** Special enviroment diffuser[3]
FSSA60 Folding Single-Strut Arm, 60" length		**300I**[1]	**LPI** Lamp included[4]
		50S[2]	

NOTES:
1 Metal lamp head provided
2 Vacuum metalized polycarbonate lamp head
3 Available only for 50S
4 Standrd in H.I.D. units, not avaialble for incandescent

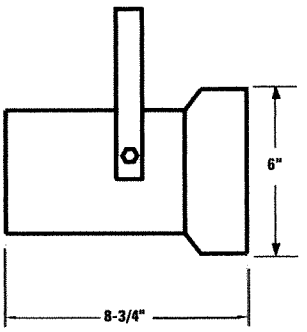
Accessories

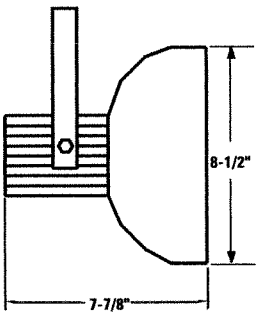
Order as separate catalog numbers.

HDWB Heavy-duty wall bracket
PLHWG8 Polycarbonate lamp head wireguard
MLHWG6 Metal lamp head wireguard



FSSA40 / FSSA60





Lithonia Nomenclature	Lbs	Kg	Lithonia Nomenclature	Lbs	Kg
FSSA40 ADJ 150I	12	26.4	FSSA40 ADJ 300I	13	28.6
FSSA60 ADJ 150I	15	33	FSSA60 ADJ 300I	16	35.2
FSSA40 ADJ 50S LPI	14	30.8			
FSSA60 ADJ 50S LPI	17	37.4			

LITHONIA LIGHTING®
An AcuityBrands Company

Lithonia Lighting
Acuity Lighting Group, Inc.
Indoor H.I.D.
One Lithonia Way, Conyers, GA 30012
Phone: 770-922-9000, 800-315-4963, Fax: 770-602-1531
In Canada: 1100 50th Ave., Lachine, Quebec H8T 2V3
www.lithonia.com

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F12 & F16

Gotham Architectural Downlighting

AF 8 TRT OPEN

Type ..... Catalog number .....

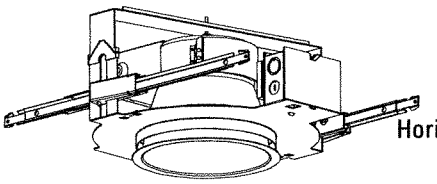
.....

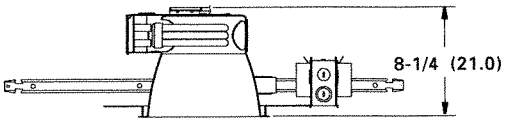
Compact Fluorescent Lighting

8" AF

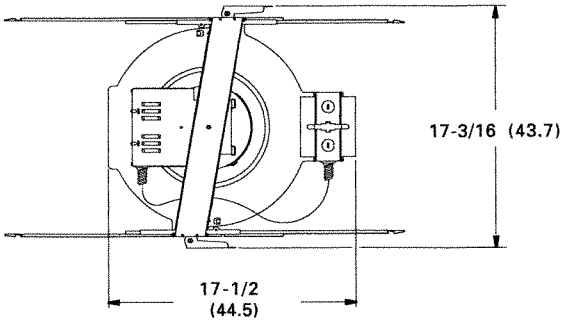
Open Reflector

Horizontal Lamp, Triple-Tube





Aperture: 8 (20.3)
Ceiling Opening: 8-7/8 (22.5)
Overlap Trim: 9-1/4 (23.5)



All dimensions are inches (centimeters).

FEATURES

OPTICAL SYSTEM

- Reflector - Self-flanged, specular clear or semi-diffuse reflector. Fluted vertical upper section works in conjunction with Bounding Ray Optical Principle to provide lamp before lamp image and smooth transition from top of reflector to bottom. Minimum flange matches reflector finish. White painted flange optional.
- Baffle/cone - Specular clear upper reflector. Microgroove baffle with white painted flange or specular black cone with flange that matches cone finish.
- Hinged lampdoor seals upper trim for optimal fixture efficiency and the reduction of stray light in the plenum.

MECHANICAL

- 16-gauge galvanized steel mounting/plaster frame with integral yoke to retain optical system. Maximum 1-1/2" ceiling thickness.
- Mounting bars are 16-gauge galvanized steel with continuous 4" vertical adjustment, held in place with toolless, integral cam-action locking system. Post installation adjustment possible without the use of tools from above or below the ceiling. Shipped pre-installed.
- Galvanized steel junction box with bottom-hinged access covers and spring latches. Two combination 1/2"–3/4" and three 1/2" knockouts for straight-through conduit runs. Capacity: 8 (4 in, 4 out) No. 12 AWG conductors, rated for 90°C.

ELECTRICAL SYSTEM

- Horizontally-mounted, four-pin, positive-latch, thermoplastic socket(s).
- Class P, thermally-protected high power factor electronic ballast(s) mounted to the junction box (CP and EL ballast mounted on ballast tray).

LISTING

- Fixtures are UL listed for thru-branch wiring, recessed mounting and damp locations. Listed and labeled to comply with Canadian Standards (see Options).

ENERGY

LER.DOL	Annual Energy Cost	Lamps	Lamp Lumens	Ballast Factor	Input Watts
47	$5.06	1/42TRT	3200	.98	45

Calculated in accordance with NEMA standard LE-5.

ORDERING INFORMATION

Choose the boldface catalog nomenclature that best suits your needs and write it on the appropriate line. Order accessories as separate catalog numbers (shipped separately).

Example: **AF 2/32TRT 8AR MVOLT**

AF _____

Series	Wattage/Lamp	Reflector/Color	Finish	Voltage	Ballast	Options
AF	1/18TRT	8AR Clear	(blank) Specular low iridescent	MVOLT[4]	(blank) GEB10 standard. Electronic ballast.	WLP With 35°K lamp (shipped separately).
	1/26TRT	8PR Pewter	LD Semi-diffuse low iridescent	120	DMHL[5] Lutron Hi-Lume electronic dimming ballast.	TRW White flange.
	1/32TRT	8UBR Umber		277	ADEZ[5] Advance Mark X electronic dimming ballast.	EL[5,6] Emergency battery pack. Integral test switch provided.
	1/42TRT	8WTR Wheat		347		ELR[5] Emergency battery pack. Remote test switch provided.
	2/18TRT	8CR Champagne Gold[1]				GMF Single, slow-blow fuse (not available with MVOLT).
	2/26TRT	8GR Gold[1]				RIF Radio Interference Filter.
	2/32TRT	8MB Black Baffle[2,3]				LRC Provides compatibility with Lithonia Reloc System. Lithonia Reloc System can be installed less this option with connectors provided by others. Access above ceiling required. For compatible Reloc Systems, refer to options and accessories tab.
	2/42TRT	8BC Black Cone[2]				QDS Quick Disconnect for easy ballast replacement. Not available with EL or ELR option.
						CP Chicago Plenum (consult factory).
						CSA CSA Certified.

NOTES:

1 For use with Sylvania lamps only.
2 Not recommended for use with compact fluorescent lamp. Consult factory.
3 White flange standard.
4 Multi-volt electronic ballast capable of operating on any line voltage between 120-277 volt.
5 Consult factory for specific availability.
6 Not available with black cone.

Accessories

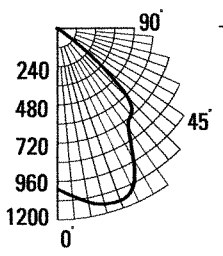
Order as separate catalog number.

SC8FL Sloped ceiling adaptor. Degree of slope must be specified (10D, 15D, 20D, 25D, 30D). Ex: SC8FL 10D

8" AF Open Reflector

Distribution curve | Distribution data | Output data | Coefficient of utilization | Illuminance Data at 30" Above Floor for a Single Luminaire

AF 1/32TRT 8AR, (1) CF32DT/E/IN/835, 2400 lumens per lamp, 1.3 s/mh, test no. LTL9452



From 0°	cp.	Lumens
0°	1005	
5°	1053	95
15°	1140	275
25°	1105	416
35°	768	405
45°	622	354
55°	42	46
65°	11	11
75°	9	10
85°	8	8
90°	0	

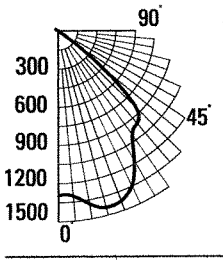
Zone	Lumens	%lamp
0°-30°	785.7	32.7
0°-40°	1190.3	49.6
0°-60°	1590.4	66.3
0°-90°	1619.7	67.5
90°-180°	0.0	0.0
0°-180°	1619.7	67.5*

*Efficiency

ρf	20%					
ρc	80%		70%		50%	
ρw	50%	30%	50%	30%	50%	30%
1	74	72	72	70	69	68
2	67	64	66	63	64	61
3	62	57	61	57	59	56
4	56	52	56	51	54	50
5	52	47	51	47	50	46
6	48	43	47	43	46	42
7	44	39	43	39	43	38
8	41	36	40	36	39	35
9	38	33	37	33	37	33
10	35	31	35	30	34	30

Mount height	Initial fc at beam center	50% beam angle 61.0° Beam diameter	50% beam angle 61.0° fc at beam edge	10% beam angle 94.7° Beam diameter	10% beam angle 94.7° fc at beam edge
8'	33.2	6.5	16.6	11.9	3.3
10'	17.9	8.8	8.9	16.3	1.8
12'	11.1	11.2	5.6	20.6	1.1
14'	7.6	13.5	3.8	25.0	0.8
16'	5.5	15.9	2.8	29.3	0.6

AF 1/42TRT 8AR, (1) CF42DT/E/IN/835, 3200 lumens per lamp, 1.3 s/mh, test no. LTL9455



From 0°	cp.	Lumens
0°	1295	
5°	1303	122
15°	1437	373
25°	1347	588
35°	998	570
45°	848	464
55°	42	49
65°	4	4
75°	1	1
85°	0	0
90°	0	

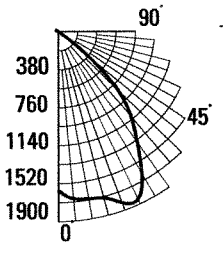
Zone	Lumens	%lamp
0°-30°	1083.2	33.8
0°-40°	1653.4	51.7
0°-60°	2166.3	67.7
0°-90°	2171.7	67.9
90°-180°	0.0	0.0
0°-180°	2171.7	67.9*

*Efficiency

ρf	20%					
ρc	80%		70%		50%	
ρw	50%	30%	50%	30%	50%	30%
1	74	72	73	71	70	69
2	68	65	67	64	65	62
3	62	59	61	58	60	57
4	57	53	56	52	55	51
5	53	48	52	48	51	47
6	49	44	48	43	47	43
7	45	40	44	40	43	39
8	41	37	41	37	40	36
9	38	34	38	34	37	33
10	36	31	36	31	35	31

Mount height	Initial fc at beam center	50% beam angle 64.5° Beam diameter	50% beam angle 64.5° fc at beam edge	10% beam angle 94.8° Beam diameter	10% beam angle 94.8° fc at beam edge
8'	42.8	6.9	21.4	12.0	4.3
10'	23.0	9.5	11.5	16.3	2.3
12'	14.3	12.0	7.2	20.7	1.4
14'	9.8	14.5	4.9	25.0	1.0
16'	7.1	17.0	3.6	19.3	0.7

AF 2/32TRT 8AR, (2) CF32DT/E/IN/835, 2400 lumens per lamp, 1.4 s/mh, test no. LTL9407



From 0°	cp.	Lumens
0°	1584	
5°	1676	165
15°	1720	514
25°	1849	795
35°	1348	815
45°	830	549
55°	36	63
65°	5	6
75°	2	2
85°	0	0
90°	0	

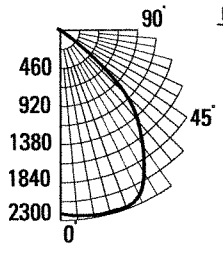
Zone	Lumens	%lamp
0°-30°	1473.7	30.7
0°-40°	2288.7	47.7
0°-60°	2901.1	60.4
0°-90°	2909.7	60.6
90°-180°	0.0	0.0
0°-180°	2909.7	60.6*

*Efficiency

ρf	20%					
ρc	80%		70%		50%	
ρw	50%	30%	50%	30%	50%	30%
1	66	65	65	64	63	61
2	61	58	60	57	58	56
3	56	52	55	52	53	51
4	51	48	51	47	49	46
5	47	43	47	43	46	42
6	44	39	43	39	42	39
7	40	36	40	36	39	35
8	37	33	37	33	36	33
9	35	31	34	30	34	30
10	32	28	32	28	31	28

Mount height	Initial fc at beam center	50% beam angle 67.9° Beam diameter	50% beam angle 67.9° fc at beam edge	10% beam angle 94.3° Beam diameter	10% beam angle 94.3° fc at beam edge
8'	52.4	7.4	26.2	11.9	5.2
10'	28.2	10.1	14.1	16.2	2.8
12'	17.6	12.8	8.8	20.5	1.8
14'	12.0	15.5	6.0	24.8	1.2
16'	8.7	18.2	4.3	29.1	0.9

AF 2/42TRT 8AR, (2) CF42DT/E/IN/835, 3200 lumens per lamp, 1.4 s/mh, test no. LTL9406



From 0°	cp.	Lumens
0°	2211	
5°	2248	225
15°	2270	707
25°	2205	1097
35°	1699	1137
45°	1092	749
55°	47	84
65°	7	8
75°	3	3
85°	0	0
90°	0	

Zone	Lumens	%lamp
0°-30°	2029.5	31.7
0°-40°	3166.3	49.5
0°-60°	3999.6	62.5
0°-90°	4009.9	62.7
90°-180°	0.0	0.0
0°-180°	4009.9	62.7*

*Efficiency

ρf	20%					
ρc	80%		70%		50%	
ρw	50%	30%	50%	30%	50%	30%
1	69	67	67	66	65	64
2	63	60	62	59	60	58
3	58	54	57	54	55	52
4	53	49	52	49	51	48
5	49	45	48	44	47	44
6	45	41	45	40	44	40
7	42	37	41	37	40	37
8	39	34	38	34	37	34
9	36	32	36	31	35	31
10	33	29	33	29	33	29

Mount height	Initial fc at beam center	50% beam angle 67.6° Beam diameter	50% beam angle 67.6° fc at beam edge	10% beam angle 94.1° Beam diameter	10% beam angle 94.1° fc at beam edge
8'	73.1	7.4	36.5	11.8	7.3
10'	39.3	10.0	19.7	16.1	3.9
12'	24.5	12.7	12.2	20.4	2.4
14'	16.7	15.4	8.4	24.7	1.7
16'	12.1	18.1	6.1	29.0	1.2

NOTES:

1 For electrical characteristics, refer to electrical data tab.

2 Tested to current IES and NEMA standards under stabilized laboratory conditions. Various operating factors can cause differences between laboratory data and actual field measurements. Dimensions and specifications are based on the most current available data and are subject to change without notice.

3 Consult factory or IES file for microgroove baffle, black cone and othe photometric reports.

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F13

Gotham Architectural Downlighting

LGFV 8

FEATURES

Type Catalog number

.....

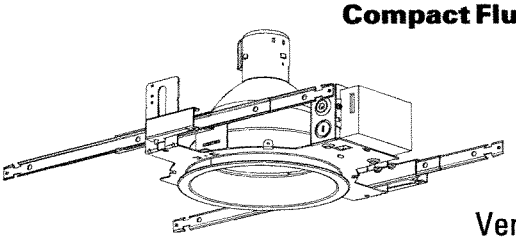
.....

Compact Fluorescent Downlights

8" LGFV

Round Lens

Wet Location
Vertical Triple-Tube Lamp



OPTICAL SYSTEM

- Aluminum upper reflector coated with highly reflective white paint provides high efficiency and an evenly illuminated aperture appearance.
- Available with tempered prismatic lens (T73), flat Fresnel lens (FFL) or flat opal lens (FOL).
- Regressed white door (RW) or stepped black baffle (SB) available with white painted flange provided.
- Door is retained by self-aligning, torsion support springs, preventing gaps between door and ceiling.

MECHANICAL SYSTEM

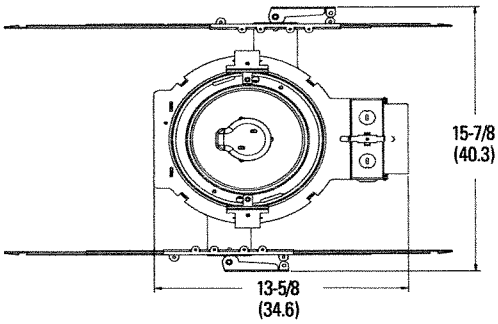
- 16-gauge galvanized steel mounting/plaster frame with integral brackets to retain optical system. Maximum 1-1/2" ceiling thickness.
- 16-gauge galvanized steel mounting bars with continuous 4" vertical adjustment are shipped pre-installed. Post installation adjustment possible without the use of tools from above or below ceiling.
- Galvanized steel junction box with hinged access covers and spring latch. Two combination 1/2"-3/4" and three 1/2" knockouts for straight-through conduit runs. Capacity: 8 (4 in, 4 out) No. 12 AWG conductors rated for 90°C.

ELECTRICAL SYSTEM

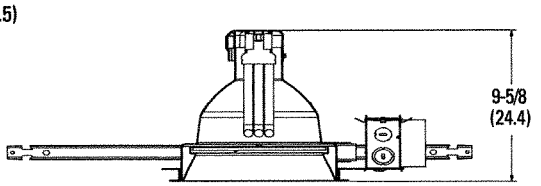
- Rugged aluminum lampholder housing.
- Vertically-mounted, four-pin, positive-latch, thermoplastic socket.
- Class P, thermally-protected, high power factor, electronic ballast mounted to the junction box.

LISTING

- Fixtures are UL Listed for thru-branch wiring, Non-IC recessed mounting and wet locations. Listed and labeled to comply with Canadian Standards.



Aperture: 7-7/8 (20.1)
Ceiling Opening: 8-7/8 (22.5)
Overlap Trim: 9-1/4 (23.5)



All dimensions are inches (centimeters).

ORDERING INFORMATION

Example: **LGFV 32TRT 8RW T73 MVOLT**

Choose the boldface catalog nomenclature that best suits your needs and write it on the appropriate line.
Order accessories as separate catalog numbers (shipped separately).

LGFV

Series	Wattage/Lamp	Door Frame	Shielding	Voltage	Ballast	Options
LGFV	**18TRT**	**8RW** Regressed white door	**T73** Tempered prismatic lens	**120**	**(blank)** Electronic ballast (standard)	**CP** Chicago Plenum
	26TRT[1]			**277**		**TRDA** Tamper-Resistant Door Assembly.
	32TRT		**FFL** Flat Fresnel lens	**347**	**DMHL**[3,4] Lutron Compact SE® electronic dimming ballast	**LRC**[5] Provides compatibility with Lithonia Reloc® System. Lithonia Reloc System can be installed less this option with connectors provided by others. Access above ceiling required
	42TRT	**8SB** Stepped black baffle	**FOL** Flat opal lens	**MVOLT**[2]	**ADEZ**[3,4] Advance Mark X™ electronic dimming ballast	**GMF** Single slow-blow fuse (not available with MVOLT)
					ADZT[4] Advance Mark VII™ electronic dimming ballast	**GLR** Single fast-blow fuse (not available with MVOLT)
						WLP Lamp (shipped separately)
						RIF Radio Interference Filter
						QDS[6] Quick Disconnect System for easy ballast replacement
						ELR[7] Emergency battery pack. Remote test switch provided
						ELRSD[7] Emergency battery pack. Remote test switch and self-diagnostics module provided
						GSKT Foam gasketing, ships uninstalled

NOTES

1 Will also operate 26DTT 4-PIN lamp.
2 Multi-volt electronic ballast capable of operating on any line voltage from 120V through 277V, 50 or 60 Hz.
3 Not available with MVOLT.
4 Not available with 347V.
5 For compatible Reloc Systems, refer to Technical Bulletins tab.
6 Not available with ELR option.
7 For dimensional changes refer to Technical Bulletins tab.

Accessories

Order as separate catalog number.

SCA8 Sloped ceiling adapter Degree of slope must be specified (10D, 15D, 20D, 25D, 30D). Ex: SCA8 **10D**.

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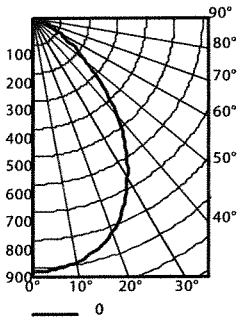
8" LGFV Round Lens

Distribution curve | **Distribution data** | **Output data** | **Coefficient of utilization** | **Illuminance Data at 30" Above Floor for a Single Luminaire**

LGFV 42TRT 8RW T73, 42TRT lamp, 1.1 s/mh, 3200 rated lumens, Test no. LTL14206



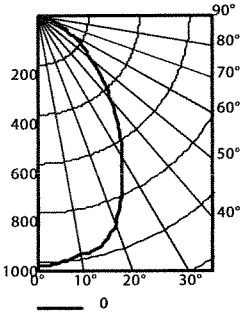
From 0°	Ave	Lumens
0	913	
5	909	86
15	864	243
25	752	344
35	569	354
45	350	270
55	170	155
65	79	80
75	29	33
85	7	8
90	0	

Zone	Lumens	% Lamp
0° - 30°	673.3	21.0
0° - 40°	1027.0	32.1
0° - 60°	1451.9	45.4
0° - 90°	1572.5	49.1
90° - 180°	0.0	0.0
0° - 180°	1572.5	*49.1
*Efficiency		

pf		80%		70%		20%
pc		50%	30%	50%	30%	50%	30%
pw							
1		.53	.51	.52	.50	.50	.49
2		.48	.45	.47	.44	.45	.43
3		.43	.40	.42	.39	.41	.38
4		.39	.35	.38	.35	.37	.34
5		.36	.32	.35	.32	.34	.31
6		.33	.29	.32	.29	.31	.28
7		.30	.26	.30	.26	.29	.26
8		.28	.24	.27	.24	.27	.24
9		.26	.22	.25	.22	.25	.22
10		.24	.20	.24	.20	.23	.20

Mount height	Inital fc at beam center	50% beam angle 58.1° Beam diameter	50% beam angle 58.1° fc at beam edge	10% beam angle 95.0° Beam diameter	10% beam angle 95.0° fc at beam edge
8	30.2	6.1	15.1	12.0	3.0
10	16.2	8.3	8.1	16.4	1.6
12	10.1	10.6	5.1	20.7	1.0
14	6.9	12.8	3.5	25.1	0.7
16	5.0	15.0	2.5	29.4	0.5

LGFV 42TRT 8RW FFL, 42TRT lamp, 1.0 s/mh, 3200 rated lumens, Test no. LTL14207



From 0°	Ave	Lumens
0	1013	
5	1004	95
15	966	269
25	781	358
35	554	346
45	354	275
55	208	187
65	103	103
75	36	40
85	9	10
90	0	

Zone	Lumens	% Lamp
0° - 30°	721.8	22.6
0° - 40°	1067.7	33.4
0° - 60°	1529.5	47.8
0° - 90°	1682.7	52.6
90° - 180°	0.0	0.0
0° - 180°	1682.7	*52.6
*Efficiency		

pf		80%		70%		20%
pc		50%	30%	50%	30%	50%	30%
pw							
1		.56	.55	.55	.54	.53	.52
2		.51	.48	.50	.47	.48	.46
3		.46	.42	.45	.42	.43	.41
4		.41	.38	.41	.37	.40	.36
5		.38	.34	.37	.33	.36	.33
6		.35	.30	.34	.30	.33	.30
7		.32	.28	.31	.28	.31	.27
8		.29	.25	.29	.25	.28	.25
9		.27	.23	.27	.23	.26	.23
10		.25	.22	.25	.22	.25	.21

Mount height	Inital fc at beam center	50% beam angle 54.8° Beam diameter	50% beam angle 54.8° fc at beam edge	10% beam angle 94.1° Beam diameter	10% beam angle 94.1° fc at beam edge
8	33.5	5.7	16.7	11.8	3.3
10	18.0	7.8	9.0	16.1	1.8
12	11.2	9.9	5.6	20.4	1.1
14	7.7	11.9	3.8	24.7	0.8
16	5.6	14.0	2.8	29.0	0.6

NOTES:
1. For electrical characteristics consult Technical Bulletins tab.
2. Tested to current IES and NEMA standards under stabilized laboratory conditions. Various operating factors can cause differences between laboratory data and actual field measurements. Dimensions and specifications are based on the most current available data and are subject to change without notice.

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F14

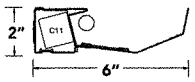
Peerless Lighting

HCM5

HOT-5™ COVE

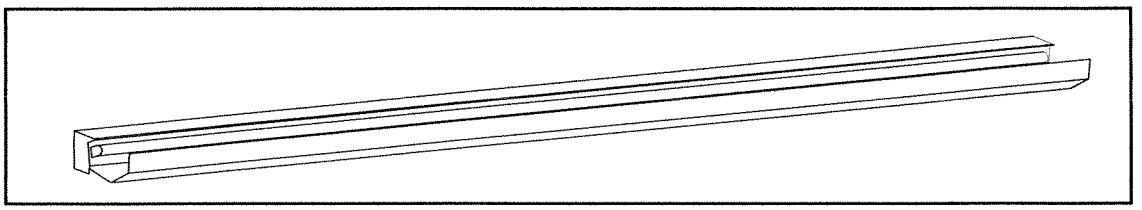
WITH T5 HIGH-OUTPUT LAMP

AVAILABLE FIXTURES



HCM5-1

SPECIFICATIONS



CONSTRUCTION
Housing pre-finished cold-rolled sheet steel forming a 6 3/32" x 1 7/8" rectangular channel.

REFLECTORS
Die-formed, white reflector with a minimum 85% reflectance. Optical system includes micro-prismatic, 100% virgin acrylic specular diffusing optical lens.

ELECTRICAL
Specify 120 volt or 277 volt. Pre-wired with prescribed circuits as specified. UL Ilisted. Listed and labeled to comply with Canadian standards. For special circuiting, consult factory. T5 high-output lamps are included.

FIXTURE LENGTH
Available in nominal 2,' 3,' 4,' and 8' sections only. Consult factory for additional lengths.

ORDERING LOGIC

Use guide below to order complete fixture run(s) of any length.

Fixture	# of Lamps in Cross Section	Lamp Type	Reflector	Nominal Row Length[1]	Maximum Section Length	Voltage	Ballast Type	# of Emergency/Night Light Sections[2]	Emergency/Night Light Type[2,3]	Switching	Lamp Color	Mounting Type	Feed/Suspension Lengths	Options
HCM5	1			FT			HCM5					/		

- Lamp Type: **24T5HO** – 39T5HO – 54T5HO
- Maximum Section Length: **R4** – R8 – R12
- Voltage: **120** – 277 – 347
- Ballast Type: **GEB10** – <10% THD Ballast *(consult factory for dimming options)*
- # of Emergency/Night Light Sections[2]: **Blank** – No Emergency; **1SE** – 1 Section; **2SE** – 2 Sections; **XSE** – X Sections
- Emergency/Night Light Type[2,3]: **Blank** – No Emergency or Night Light; **EL** – Emergency Battery Pack; **EC** – Emergency/Night Light Circuit; **EN** – Emergency Battery Pack with Night Light Circuit
- Switching: **SCT** – Single Circuit; **DCT** – Dual Circuit
- Lamp Color: **L/LP** – No lamps; **LP830** – 3000°K, 80+CRI; **LP835** – 3500°K, 80+CRI; **LP841** – 4100°K, 80+CRI
- Options: **DU** – Dust Cover; **ELH** – EM through wire/w separate feed; **ELS** – EM through wire/w single feed; **GLR** – Fusing (fast blow); **GMF** – Fusing (slow blow)

Notes:
1. Must be in 4' increments
2. Optional
3. EL and EC are installed in last 4' of fixture sections and are not available concurrently with each other. Separate feed required for each EL or EC unless ELH is specified.

EXAMPLE:

Qty Fixture section
4 HCM5 1 39T5HO U3 120 GEB10 LP835 GLR
1 HCM5 1 54T5HO U8 277 GEB10 EC L/LP

PEERLESS LIGHTING Box 2556, Berkeley, CA 94702-0556 510.845-2760 Fax 510.845-2776 www.peerless-lighting.com

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ITEM #: _____

HOT-5™ COVE

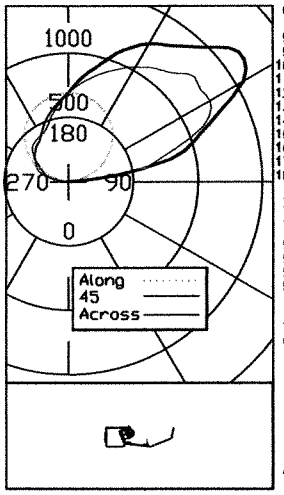
WITH T5 HIGH-OUTPUT LAMP

T5 HIGH-OUTPUT PHOTOMETRIC REPORT HCM5-1

FAR-FIELD PHOTOMETRY

REPORT NUMBER: 4052 DATE: 4-15-1998

CATALOG NUMBER: HCM5-1
LUMINAIRE: 6 1/2"W X 2"H RECTANGULAR ASYMMETRIC UPLIGHT WITH WHITE PAINTED REFLECTOR AND KICKER LENS
LAMP(S): FO54W/840 RATED @ 5000 LUMENS
BALLAST: OSRAM QT 1X54/277PHO
MOUNTING:
LUMEN TO CANDELA RATIO USED = 9.15
TOTAL INPUT WATTS = 59.0 AT 277.0 VOLTS
THE 0 DEGREE PLANE IS PERPENDICULAR TO THE LAMPS.



CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0	FLUX
90	0	0	0	0	0	
95	189	236	19	70	78	138
105	927	758	136	184	207	449
115	1285	1194	266	239	277	617
125	1657	1241	380	320	323	666
135	1475	1189	481	359	392	576
145	1299	1084	562	394	413	456
155	1151	969	622	468	434	331
165	947	858	665	558	526	200
175	778	747	687	649	636	67
180	698	698	698	698	698	

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LAMP	%FIXT
0- 90	0	0.0	0.0
90-120	1205	24.1	34.4
90-130	1871	37.4	53.4
90-150	2903	58.1	82.9
90-180	3501	70.0	100.0
0-180	3501	70.0	100.0

TOTAL LUMINAIRE EFFICIENCY = 70.0 %
CIE TYPE - INDIRECT

APPROVED BY:

TESTED IN ACCORDANCE WITH IES PROCEDURES, TEST DISTANCE EXCEEDS 25.0 FEET
NEAR-FIELD PHOTOMETRY AND CU TABLE AVAILABLE UPON REQUEST

PERFORMANCE SUMMARIES

1-LAMP

% Luminaire Lumens from	90°-120°	34%
	90°-130°	53%
	90°-150°	82%
Maximum Intensity Location		120°-130°
Luminaire Efficiency		70%

PEERLESS LIGHTING Box 2556, Berkeley, CA 94702-0556 510.845-2760 Fax 510.845-2776 www.peerless-lighting.com

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ITEM #:

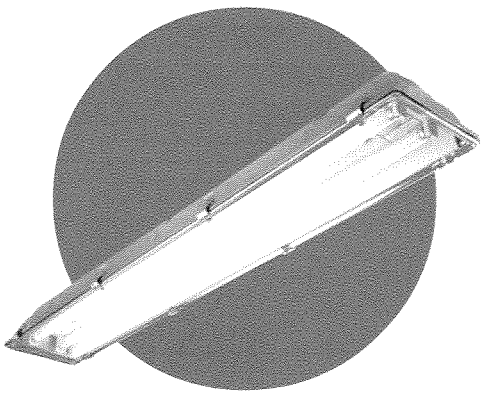
F15

Columbia Lighting

FSPH

FSPH

Performer Series, Stainless Steel, Hazardous



Features

- For use in outdoor, hosedown, hazardous, and corrosive environments
- Ceiling, pendant, or wall mount
- Latches – captive, toggle action 304 SS
- Lens – tempered glass, high-impact acrylic or polycarbonate (non-hazardous)
- Gasket – one piece extruded silicone
- Bracket accessories – 304 SS
- UL844: Class I, Div. 2 Groups A,B,C,D (T-Code = T3C); Class II, Div. 2 Group G; Class III
- UL listed 1598 wet location
- Formerly known as SSHZ

Ordering Information Example: FSPH4-232-EB8277

FSPH 4 - - - - -

Model
FSPH - Performer Series, Stainless Steel, Hazardous Location

Length
4 - 4'

Number of Lamps in Cross Section
1 - One
2 - Two
3 - Three

Lamp Type
32 - 4', 32 Watt, T8
44 - 4', 44 Watt, T8 HO

Lens
Blank - Tempered Glass
DR - Acrylic High Impact 100% DR
CP - Clear Polycarbonate

Ballast[1]
EB8 - Electronic T8, <20% THD, 50°F
3EB8 - 3-Lamp Electronic T8, <20% THD, 50°F

Voltage
120 - 120V
277 - 277V
347 - 347V

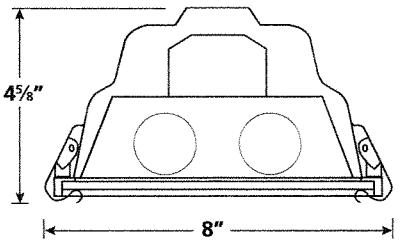
Options
NSF - National Sanitation Foundation
FSPHWA - Top Bracket Wall/ Angle Kit, 2 Per Kit, 304 Stainless Steel
FSPHB - Top Bracket Suspension Kit, 2 Per Kit, 304 Stainless Steel

[1]Ballasts may not be available in all combinations of lamp/voltage/starting temp/THD shown above.

Product Availability

Size	Lamps in Cross Section	Lamps in Fixture	Lamp Type	Width	Length	Height
4'	1	1	32, 44	8"	51⅜"	4⅝"
	2	2	32, 44	8"	51⅜"	4⅝"
	3	3	32	8"	51⅜"	4⅝"

Cross Sections



F17

Gotham Architectural Downlighting

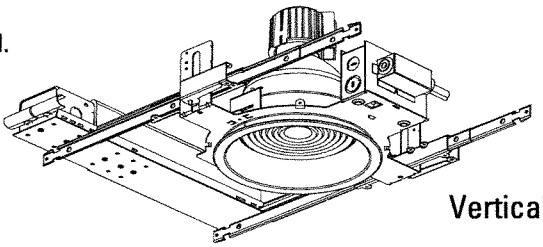
LGH 8

FEATURES

Type ..... Catalog number .....

OPTICAL SYSTEM

- Aluminum upper reflector coated with highly reflective white paint provides high efficiency and an evenly illuminated aperture appearance.
- Available with tempered prismatic lens (T73), flat Fresnel lens (FFL) or flat opal lens (FOL).
- Regressed white door (RW) or stepped black baffle (SB) are available with white painted flange provided.
- Door is retained by self-aligning, torsion support springs, preventing gaps between door and ceiling.



HID Downlights

8" LGH

Round Lens

Wet Location
Vertical Metal Halide Lamp

MECHANICAL SYSTEM

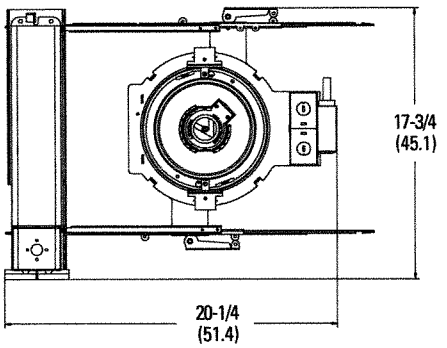
- 16-gauge galvanized steel mounting/plaster frame with integral brackets to retain optical system. Maximum 1-1/2" ceiling thickness.
- 16-gauge galvanized steel mounting bars with continuous 4" vertical adjustment are shipped pre-installed. Post installation adjustment possible without the use of tools from above or below ceiling.
- Galvanized steel junction box with hinged access covers and spring latch. Two combination 1/2"-3/4" and four 1/2" knockouts for straight-through conduit runs. Capacity: 8 (4 in, 4 out) No. 12 AWG conductors rated for 90°C.

ELECTRICAL SYSTEM

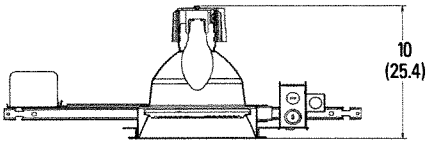
- Die-cast aluminum lampholder housing.
- Medium-base porcelain socket with nickel-plated screw shell.
- Prewired encased-and-potted, 120/277 or 120/347 ballast tray module. Module can be attached before or after mounting of mounting/plaster frame.
- Thermally-activated insulation detector.

LISTING

- Fixtures are UL Listed for thru-branch wiring, Non-IC recessed mounting and wet locations. Listed and labeled to comply with Canadian Standards.



Aperture:	7-7/8 (20.1)
Ceiling Opening:	8-7/8 (22.5)
Overlap Trim:	9-1/4 (23.5)



All dimensions are inches (centimeters).

ORDERING INFORMATION

Example: **LGH 150M 8RW T73 120**

Choose the boldface catalog nomenclature that best suits your needs and write it on the appropriate line.
Order accessories as separate catalog numbers (shipped separately).

LGH

Series	Wattage/Lamp[1]	Door Frame	Shielding	Voltage	Options
LGH	**Metal Halide** **50M** 50W ED17 **70M** 70W ED17 **100M** 100W ED17 **150M** 150W ED17 **Color-Corrected Metal Halide** **50MHC** 50W ED17 **70MHC** 70W ED17 **100MHC** 100W ED17 **150MHC** 150W ED17	**8RW** Regressed white door **8SB** Stepped black baffle	**T73** Tempered prismatic lens **FFL** Flat Fresnel lens **FOL** Flat opal lens	**120** **277** **347**	**CP** Chicago Plenum **TRDA** Tamper-Resistant Door Assembly **LRC[2]** Provides compatibility with Lithonia Reloc® System. Lithonia Reloc System can be installed less this option with connectors provided by others. Access above ceiling required **QRS[3]** Quartz Restrike System. **QRSTD[4]** Quartz Restrike System with time delay **EC[5]** Emergency Circuit **SF** Single Fuse **WLP** Lamp gasketing, ships uninstalled

NOTES
1 Recommended for use with coated lamps.
2 For compatible Reloc systems, refer to Technical Bulletins tab.
3 Not available with QRSTD or EC.
4 Not available with QRS or EC.
5 Not available with QRS or QRSTD.

Accessories

Order as separate catalog number.

SCA8 Sloped ceiling adapter
Degree of slope must be specified (10D, 15D, 20D, 25D, 30D). Ex: SCA8 **10D**.

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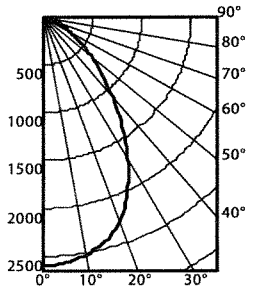
8" LGH Open Reflector

Distribution curve | **Distribution data** | **Output data** | **Coefficient of utilization** | **Illuminance Data at 30" Above Floor for a Single Luminaire**

LGH 100M 8RW T73, 100W ED17 lamp, 1.0 s/mh, 7900 rated lumens, Test no. LTL14368



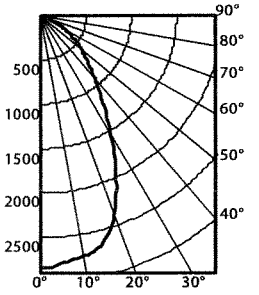
From 0°	Ave	Lumens
0	2599	
5	2576	244
15	2424	680
25	2014	918
35	1395	871
45	833	647
55	446	405
65	238	237
75	91	103
85	22	25
90	0	

Zone	Lumens	% Lamp
0° - 30°	1841.8	23.3
0° - 40°	2713.2	34.3
0° - 60°	3765.2	47.7
0° - 90°	4130.0	52.3
90° - 180°	0.0	0.0
0° - 180°	4130.0	*52.3
*Efficiency		

pf			20%			
pc	80%		70%		50%	
pw	50%	30%	50%	30%	50%	30%
1	.56	.54	.55	.53	.53	.52
2	.51	.48	.50	.47	.48	.46
3	.46	.42	.45	.42	.44	.41
4	.42	.38	.41	.37	.40	.37
5	.38	.34	.37	.34	.36	.33
6	.35	.31	.34	.31	.33	.30
7	.32	.28	.32	.28	.31	.28
8	.30	.26	.29	.26	.29	.25
9	.28	.24	.27	.24	.27	.23
10	.26	.22	.25	.22	.25	.22

		50% beam angle 54.9°		10% beam angle 92.2°	
Mount height	Inital fc at beam center	Beam diameter	fc at beam edge	Beam diameter	fc at beam edge
8	85.9	5.7	43.0	11.4	8.6
10	46.2	7.8	23.1	15.6	4.6
12	28.8	9.9	14.4	19.8	2.9
14	19.7	12.0	9.8	23.9	2.0
16	14.3	14.0	7.1	28.1	1.4

LGH 100M 8RW FFL, 100W ED17 lamp, 1.0 s/mh, 7900 rated lumens, Test no. LTL14369



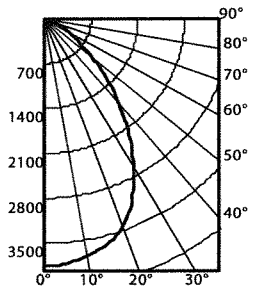
From 0°	Ave	Lumens
0	2837	
5	2794	265
15	2641	733
25	1964	896
35	1198	754
45	731	568
55	442	396
65	220	220
75	75	83
85	18	20
90	0	

Zone	Lumens	% Lamp
0° - 30°	1894.0	24.0
0° - 40°	2647.9	33.5
0° - 60°	3612.6	45.7
0° - 90°	3936.2	49.8
90° - 180°	0.0	0.0
0° - 180°	3936.2	*49.8
*Efficiency		

pf			20%			
pc	80%		70%		50%	
pw	50%	30%	50%	30%	50%	30%
1	.54	.52	.53	.51	.51	.49
2	.49	.46	.48	.45	.46	.44
3	.44	.41	.43	.40	.42	.39
4	.40	.37	.39	.36	.38	.35
5	.37	.33	.36	.33	.35	.32
6	.34	.30	.33	.30	.33	.29
7	.31	.28	.31	.27	.30	.27
8	.29	.25	.29	.25	.28	.25
9	.27	.23	.27	.23	.26	.23
10	.25	.22	.25	.22	.25	.22

		50% beam angle 50.9°		10% beam angle 88.1°	
Mount height	Inital fc at beam center	Beam diameter	fc at beam edge	Beam diameter	fc at beam edge
8	93.8	5.2	46.9	10.6	9.4
10	50.4	7.1	25.2	14.5	5.0
12	31.4	9.0	15.7	18.4	3.1
14	21.5	10.9	10.7	22.3	2.1
16	15.6	12.8	7.8	26.1	1.6

LGH 150M 8RW T73, 150W ED17 lamp, 1.1 s/mh, 12000 rated lumens, Test no. LTL14192



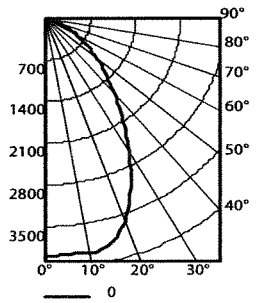
From 0°	Ave	Lumens
0	3846	
5	3823	362
15	3629	1020
25	3098	1414
35	2207	1376
45	1309	1013
55	639	583
65	299	302
75	111	124
85	26	31
90	0	

Zone	Lumens	% Lamp
0° - 30°	2795.4	23.3
0° - 40°	4170.9	34.8
0° - 60°	5766.1	48.1
0° - 90°	6222.2	51.9
90° - 180°	0.0	0.0
0° - 180°	6222.2	*51.9
*Efficiency		

pf			20%			
pc	80%		70%		50%	
pw	50%	30%	50%	30%	50%	30%
1	.56	.54	.55	.53	.53	.51
2	.50	.48	.50	.47	.48	.46
3	.46	.42	.45	.42	.43	.41
4	.42	.38	.41	.37	.40	.37
5	.38	.34	.37	.34	.36	.33
6	.35	.31	.34	.31	.33	.30
7	.32	.28	.32	.28	.31	.28
8	.30	.26	.29	.26	.29	.25
9	.28	.24	.27	.24	.27	.23
10	.26	.22	.25	.22	.25	.22

		50% beam angle 56.6°		10% beam angle 93.1°	
Mount height	Inital fc at beam center	Beam diameter	fc at beam edge	Beam diameter	fc at beam edge
8	127.1	5.9	63.6	11.6	12.7
10	68.4	8.1	34.2	15.8	6.8
12	42.6	10.2	21.3	20.1	4.3
14	29.1	12.4	14.5	24.3	2.9
16	21.1	14.5	10.6	28.5	2.1

LGH 150M 8RW FFL, 150W ED17 lamp, 1.0 s/mh, 12000 rated lumens, Test no. LTL14193



From 0°	Ave	Lumens
0	3994	
5	3969	380
15	3911	1090
25	3125	1426
35	2091	1309
45	1315	1021
55	787	707
65	387	388
75	135	149
85	32	36
90	0	

Zone	Lumens	% Lamp
0° - 30°	2896.4	24.1
0° - 40°	4205.9	35.0
0° - 60°	5933.6	49.4
0° - 90°	6506.8	54.2
90° - 180°	0.0	0.0
0° - 180°	6506.8	*54.2
*Efficiency		

pf			20%			
pc	80%		70%		50%	
pw	50%	30%	50%	30%	50%	30%
1	.58	.57	.57	.55	.55	.54
2	.52	.50	.51	.49	.50	.47
3	.47	.44	.47	.43	.45	.42
4	.43	.39	.42	.39	.41	.38
5	.39	.35	.39	.35	.38	.34
6	.36	.32	.35	.32	.35	.31
7	.33	.29	.33	.29	.32	.28
8	.31	.27	.30	.26	.30	.26
9	.28	.25	.28	.24	.28	.24
10	.27	.23	.26	.23	.26	.22

		50% beam angle 54.9°		10% beam angle 93.1°	
Mount height	Inital fc at beam center	Beam diameter	fc at beam edge	Beam diameter	fc at beam edge
8	132.0	5.7	66.0	11.6	13.2
10	71.0	7.8	35.5	15.8	7.1
12	44.3	9.9	22.1	20.0	4.4
14	30.2	12.0	15.1	24.3	3.0
16	21.9	14.0	11.0	28.5	2.2

NOTES:
1. For electrical characteristics consult Technical Bulletins tab.
2. Tested to current IES and NEMA standards under stabilized laboratory conditions. Various operating factors can cause differences between laboratory data and actual field measurements. Dimensions and specifications are based on the most current available data and are subject to change without notice.

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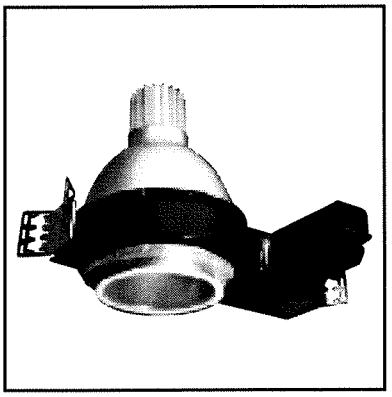
F18

Prescolite

Architektūr 1062M11



12" Ellipsoidal One Lamp MH Downlights

1062M11

One 400W ED-37 or BT-37 MH Lamp
120V or 277V

DATE: TYPE:

FIRM NAME:

PROJECT:

Architektūr

Ceiling Cutout: 12 1/4"
Maximum Ceiling Thickness: 1 1/4"
For conversion to millimeters, multiply inches by 25.4
Not to Scale

APPLICATIONS:
The Architektūr 1061M Series offers a high wattage lensed ellipsoidal metal halide downlight that provides superior brightness and glare control. This luminaire is ideal for a wide variety of high ceiling applications including commercial, retail, and hospitality areas.

HOUSING:
Diecast aluminum plaster flange and heat sink. .050" spun aluminum diffuse Alzak® upper reflector. Prewired J-box. Thermal protector. Thumbnuts (2 at 180°) allow housing to be removed for access to junction box or ballast.

REFLECTOR:
High purity aluminum Alzak reflector. Removable one-piece baffle or cone with white polypropylene trim ring.

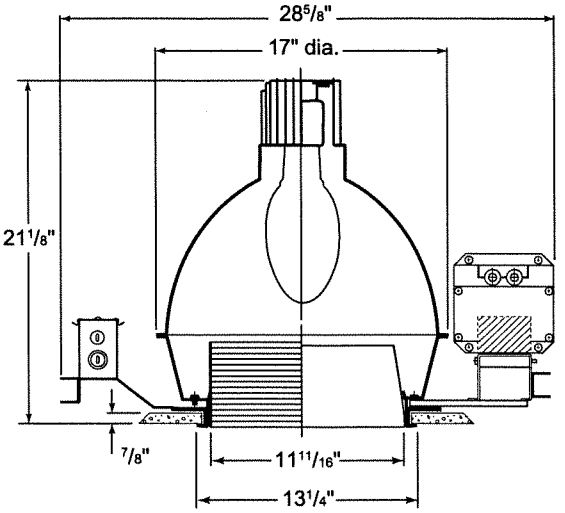
BALLAST:
Encased and potted H.P.F. dual tapped ballast with constant wattage auto-transformer (CWA). Accessible from below ceiling.

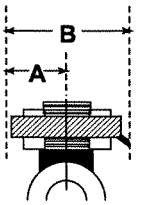
LAMP:
One (1) 400W ED-37 or BT-37 coated metal halide lamp. Lamp furnished by others. Top relampable.

SOCKET:
Mogul base porcelain socket with nickel plated screw shell.

INSTALLATION:
Universal mounting brackets accept 1/2" EMT conduit or 1 1/2" lathing channels (by others), or Prescolite 24" bar hangers (B24 or B6).

LABELS:
UL, CSA listed
Suitable for damp locations
Approved for through wiring
Thermally protected
Non-IC rated





Ballasts are not symmetrical about unit center line.

Top View

	A	B
Silent Pak	8 1/2"	17"
FE Ballast	11 27/32"	21 15/32"

HOUSING	HOUSING OPTIONS	BALLAST	REFLECTORS	REFLECTOR OPTIONS	ACCESSORIES
❑ **1062M11** 12" (1) 400W E-37/BT-37 MH fixture	❑ **DCB** Auxiliary socket (see note on back page) ❑ **FSDFA** Fuse kit installed at factory ❑ **QR** Quartz restrike (see note on back page) ❑ **347V** Contact factory	❑ **400MHFE** 400W 120V/277V FE magnetic ballast ❑ **Silent Pak** For Silent Pak ballasts, remove "FE" from ordering code	❑ **ST847** Specular clear Alzak reflector ❑ **WT846** Black Alzak cone ❑ **WT840** Black baffle	❑ **TRG** Trim ring gasket (factory installed) ❑ **WT** Painted white trim (substitute WT for ST)	❑ **B24** Set of two (2) 24" bar hangers for T-bar ceilings ❑ **B6** Set of two (2) bar hangers for ceiling joists up to 24" centers ❑ **FSDFI** Fuse kit for field installation ❑ **SCA12D_** Sloped ceiling adapter (see note on back page)

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In a continuing effort to offer the best product possible we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product.
Web: **www.prescolite.com** • Tech Support: **(888) 777-4832**

PHOTOMETRIC DATA

Architektūr - 12" Ellipsoidal MH Downlights - 1062M11

BALLAST DATA	400W	
	120V	***277V***
Total Factor	>90%	>90%
Regulation: Line Voltage	+ -5%	+ -5%
Output Wattage	+ -10%	+ -10%
Min. Ambient Starting Temp.	-30 C	-30 C
Input Watts	460W	460W
Input Amps	3.9 amp	1.7 amp
Sound Rating	C	C

LAMP DATA	
Rated Watts	400W
Rated Lumens	36,500
Efficacy (LPW)	91
Rated Life	20,000
CRI	70

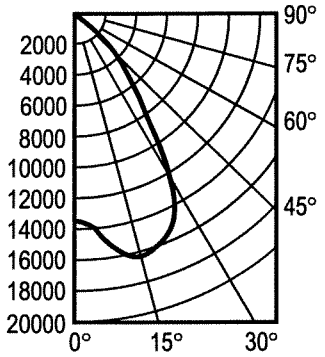
1062M11-400MHFE-847 Clear Reflector
400W ED-37
Rated Lumens: 34000 ea.
Spacing Criteria: 1.10

AVERAGE INITIAL FOOTCANDLES
Multiple Units (Square Array)
Ceiling 80% Wall 50% Floor 20%

400W ED-37

SPACING	RCR1	RCR3	RCR7
13.0	103	87	64
14.0	89	75	55
15.0	77	65	48
16.0	68	57	42
17.0	60	51	37

CANDLEPOWER DISTRIBUTION



Test No. B1113A

CANDLEPOWER SUMMARY

Angle	Mean CP	Lumens
0	13742	
5	14164	1346
15	16327	4621
25	15451	7154
35	8931	5609
45	3620	2802
55	828	743
65	27	27
75	0	0
85	0	0

COEFFICIENTS OF UTILIZATION Zonal Cavity Method

Room Cavity Ratio	% Effective Floor Cavity Reflectance: 80%				70%				50%			30%			10%		
	20% Effective Floor Cavity Reflectance																
	% Wall Reflectance: 70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
1	.75	.73	.72	.71	.73	.72	.71	.69	.69	.68	.67	.67	.66	.65	.65	.64	.63
2	.72	.69	.67	.65	.71	.68	.66	.64	.66	.64	.63	.64	.63	.61	.62	.61	.60
3	.69	.65	.62	.60	.68	.64	.62	.60	.63	.61	.59	.61	.59	.58	.60	.58	.57
4	.66	.61	.58	.56	.65	.61	.58	.55	.59	.57	.55	.58	.56	.54	.57	.55	.54
5	.63	.58	.55	.52	.62	.57	.54	.52	.56	.54	.51	.55	.53	.51	.54	.52	.51
6	.60	.55	.51	.49	.59	.54	.51	.49	.53	.50	.48	.53	.50	.48	.52	.49	.48
7	.57	.52	.48	.46	.57	.51	.48	.46	.50	.47	.45	.50	.47	.45	.49	.47	.45
8	.55	.49	.45	.43	.54	.48	.45	.42	.48	.44	.42	.47	.44	.42	.46	.44	.42
9	.52	.46	.42	.40	.51	.45	.42	.40	.45	.41	.39	.44	.41	.39	.44	.41	.39
10	.47	.41	.37	.34	.46	.40	.37	.34	.40	.36	.34	.39	.36	.34	.39	.36	.34

1062M11-400MHFE-847 Test No. B1113A

NOTES

The DCB option uses a quartz T-4 lamp to provide emergency light during power outages. The DCB socket must be field wired into an auxiliary emergency power supply circuit for emergency use.

The QR option uses a quartz T-4 lamp to provide light continuously during cold start or hot restrike until the HID lamp is at approximately 70% or more of its rated light output.

When ordering a sloped ceiling adapter, specify the degree of slope in 5° increments (max of 35°). For a more precise degree or wet ceiling application, please contact factory. The SCA must be installed during housing installation.

prescolite SINCE 1944

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HUBBELL® Hubbell Lighting, Inc.

F19

Hubbell Lighting

NV/NVQ

NON-METALLIC VAPORTITE SERIES

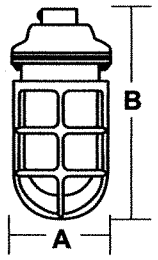
Enclosed and Gasketed

NV/NVQ

Job	Type

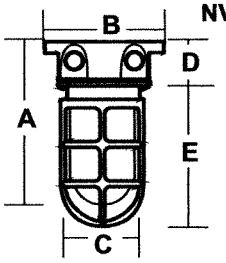
Dimensions

NVA



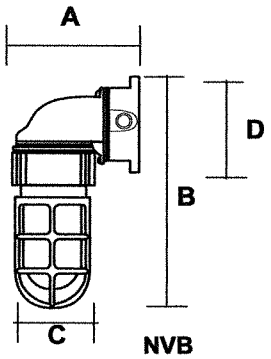
A	B
4-3/8"	9-7/8"
111 mm	251 mm

NVX



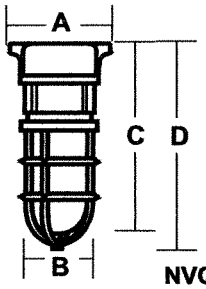
A	B	C
9-3/8"	6"	4-3/8"
238 mm	152 mm	111 mm

D	E
2"	10-1/4"
51 mm	260 mm



NVB

A	B	C	D
5"	11-1/4"	4-3/8"	6"
127 mm	286 mm	111 mm	152 mm

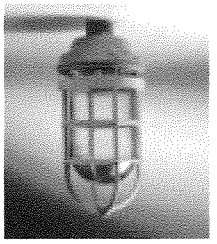


NVQX

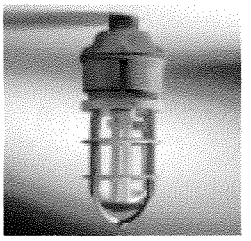
A	B	C	D
6"	4-3/8"	10-3/4"	12"
152 mm	111 mm	273 mm	305 mm

NOTE: NVQ available in 120 Volt only

Specifications



NVA



NVQA

Construction
Luminaires are constructed of 30% glass filled thermoplastic polyester for high strength and impact resistance. The lightweight yet durable housing features a molded-in, non-fading gray finish.

Mounting
The NV Series is available with three mounting options for applications flexibility. Pendant and ceiling mounted versions are available as complete unit packs. Bracket mount is achieved by field addition of an NBV arm mount adaptor to a standard ceiling mount unit. The threaded conduit opening size in 3/4".

Guard
All unit packs come complete with threaded thermoplastic guards for globe protection.

Globe
Clear glass with a choice of standard or a special heat resistant version.

Wattage
Incandescent unit accommodates up to 150 watt Type A21 lamp. For marine applications, the maximum wattage is 100. The lamp is not included. The fluorescent ballast is supplied with a Dulux D/E 18 watt quad-tube lamp. The solid state electronic fluorescent ballast provides a minimum starting temperature of -25°C (-13°F).

Listings
UL 1571 Listed fixture fitting, UL 595 Marine Outside Listed, and UL 1570 Listed fluorescent fixture. NEMA4X. IP suitability — IP46

Ordering Information[1]

Catalog Number			Description
Pendant Mount	Ceiling Mount	Bracket Mount [1]	
NV SERIES INCANDESCENT			
NVA15GG	NVX15GG	NVB15GG	Luminaire complete with standard glass globe and guard
NVA15GHG	NVX15GHG	NVB15GHG	Luminaire complete with heat resist. glass globe and guard
NVQ SERIES FLUORESCENT			
NVQA18GG	NVQX18GG	NVQB18GG	Luminaire complete with standard glass globe and guard
NVQA18GHG	NVQX18GHG	NVQB18GHG	Luminaire complete with heat resist. glass globe and guard

Note: Available in 120 Volt only.

1. Bracket Mount fixture is supplied as ceiling mount unit with all necessary components to make bracket conversion. Bracket adapter (NVB) shipped separately.

Run Photometric

Comments

See back for Photometrics

® **Submitted by:**

Hubbell Lighting, Inc., 2000 Electric Way, Christiansburg, Virginia 24073, (540) 382-6111 • Fax (540) 382-1526

Photometrics

COEFFICIENTS OF UTILIZATION

ρfc	20%											
ρcc	80%				70%				50%			0
ρw	70	50	30	10	70	50	30	10	50	30	10	0
RCR												

CANDELA DISTRIBUTION

Angle	Along ll	45°	Across ⊥

ZONAL LUMENS

Zone	Lumens	% Lamp	% Fixt

Ordering Information

ACCESSORIES [1,2,3] - Must be ordered separately

Catalog Number	Description
NVA	Pendant Mount Splice Box
NVX	Ceiling Mount Splice Box
NVFC	Incandescent Fixture Body
NVQ	Fluorescent Fixture Body (120 Volt only)
VCG-100	Clear Glass Globe — Standard
VCGP-100	Clear Glass Globe — Tempered
VPLCG-100	Polycarbonate Globe for Incandescent Unit
VPLCG-100L	Polycarbonate Globe for Fluorescent Unit
NVG	Guard
NVB	Wall Mounting Arm Adapter
NVQ-18	18 Watt Quad Tube Fluorescent Lamp for NVQ Series

1. For standard incandescent unit, supply wire temperature requirment is 125° and label states, "not for use in dwellings." For 90° C supply wire option, add -LT to catalog number. Consult factory for price and availability.
2. For standard fluorescent unit, supply wire requirement is 60° C.
3. Fixtures shipped complete with globe and guard. Colored globes from 150 watt Vaportite Series are interchangeable for field replacement.

HUBBELL® Lighting, Inc.

Hubbell Lighting, Inc., 2000 Electric Way, Christiansburg, Virginia 24073, (540) 382-6111 • Fax (540) 382-1526 • http://www.hubbell-ltg.com/
Hubbell Canada, Inc., 870 Brock Road South, Pickering, Ontario L1W1Z8, (905) 839-1138 • Fax (905) 839-9108 • http://www.hubbell-canada.com/

F20

Lithonia Lighting

DM/DMW

LITHONIA LIGHTING®

Catalog Number	
Notes	Type

FEATURES & SPECIFICATIONS

INTENDED USE

Intended for low to medium mounting heights where dust, dirt, humidity, moisture, or corrosive elements are present. Ideal for canopies, dock areas, wastewater treatment, refrigerated areas, food processing and other non-hazardous environments.

CONSTRUCTION

Housing formed from impact resistant, UV stabilized, fiberglass reinforced polyester with cold-rolled steel enclosed wireway. Poured in gasketing provides a seal between housing and diffuser. Captive, corrosion-resistant cam-action latches secure the diffuser; six on 4' units, and ten on 8' units. Stainless steel latches available.

FINISH

Painted parts pretreated with a five-stage iron-phosphate process to ensure superior paint adhesion and corrosion resistance, then finished with a high-gloss, baked white enamel.

OPTICAL SYSTEM

Acrylic diffuser with a stippled interior surface to spread lamp image. High-impact diffuser optional.

ELECTRICAL SYSTEM

Thermally protected, resetting, Class P, HPF, non-PCB, UL Listed and CSA Certified ballast is standard. Sound rating depends on lamp/ballast combination.

AWM, TFN, THHN wire throughout, rated for required temperatures.

INSTALLATION

For unit or row installations, surface (ceiling or wall) or suspended mounting.

LISTING

120V, 277V and MVOLT are UL Listed and CSA Certified (standard). 347V is CSA Certified (see Options). NOM Certified (see Options). Suitable for wet (DMW) or damp (DM) locations.

WARRANTY

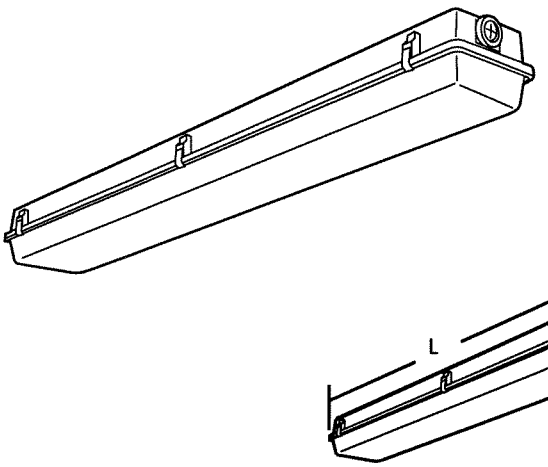
Guaranteed for one year against mechanical defects in manufacture.

Enclosed and Gasketed Industrial

DM/DMW

Rapid Start

4' or 8' length
1, 2 or 3 lamps



All dimensions are inches (millimeters). Specifications subject to change without notice.

Specifications

Length:	50" (1270)
	98" (2489)
Width:	8-1/8" (206)
Fixture Depth:	5-5/8" (143)

ORDERING INFORMATION

Example: **DMW 2 32 120 GEB**

Choose the boldface catalog nomenclature that best suits your needs and write it on the appropriate line. Order accessories as separate catalog number.

Series

DM Damp location
DMW Wet location

For tandem double-length unit, add prefix T. Example: **TDM**

Number of lamps

1, 2, 3[1]

Not included

Lamp type

32 32W T8 (48")
40 40W T12 (48")

Diffuser

(blank) Acrylic(15% DR)
AR High-impact acrylic (50% DR)
DP Deep acrylic[2]
ARDP Deep high-impact acrylic[2]

Voltage

120
277
347
MVOLT[3]
Others available

Options

ES Energy-saving ballasts (40W lamps only)
CW Cold-weather ballasts, 0°F starting[4]
ELDW Emergency battery pack (nominal 300 lumens)
EL5DW Emergency battery pack (nominal 500 lumens)
EL6DW Emergency battery pack (nominal 600 lumens)
EL14DW Emergency battery pack (nominal 1400 lumens)
GEB Electronic ballasts, ≤20% THD
GEB10IS Electronic ballasts, ≤10% THD, Instant Start[1]
GEB10RS Electronic ballasts, ≤10% THD, Rapid Start[5]
GLR Internal fast-blow fuse
GMF Internal slow-blow fuse
NSF NSF International certification[6]
RIF1 Radio interference filter, 1 per fixture
STSL Stainless steel latches
WLF Wet location fittings (1 pair, installed in fixture top)
CSA CSA Certified (Only required for 347V).
NOM NOM Certified.

Accessories

Order as separate catalog numbers.

BCD Bracket for hanger chain mounting. Two per package.
HC36 Chain hangers (1 pair, 36" long). Requires BCD.
WLF Wet location fittings (1 pair, not installed).

Notes
1 32W T8 lamps only.
2 Deep lens is standard on 8' fixtures.
3 MVOLT available with GEB10IS only.
4 Not recommended for use in ambient temperatures exceeding 40°F.
5 Available with only 32 watt and 40 watt lamp types.
6 Available for the DMW only.

MOUNTING DATA

For unit or row installation, surface (ceiling or wall) or suspended mounting.

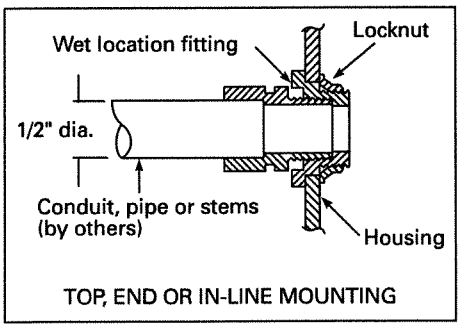
DM/DMW — Drill holes through housing and channel at appropriate locations.

DMW — Includes gasketed wet location fittings on ends for power feeding/mounting. Fitting is threaded for 1/2" rigid conduit (optional WLF for top mounting). Attach to surface using fasteners and sealing washers (by others) appropriate to ceiling materials.

Unit installation — Minimum of two hangers required.

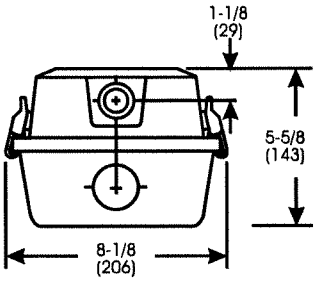
Row installation — Minimum of two hangers required. Recommend 1/2" nipple with union (by others) for DMW.

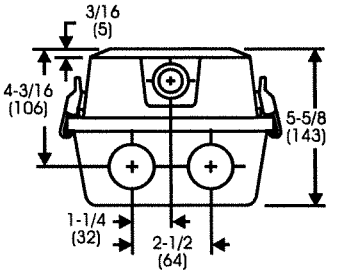
See ACCESSORIES below for hanging devices.



DIMENSIONS

Inches (millimeters). Subject to change without notice.





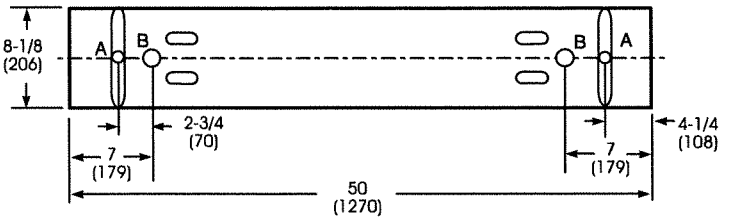
A = 11/16 (17) Dia.

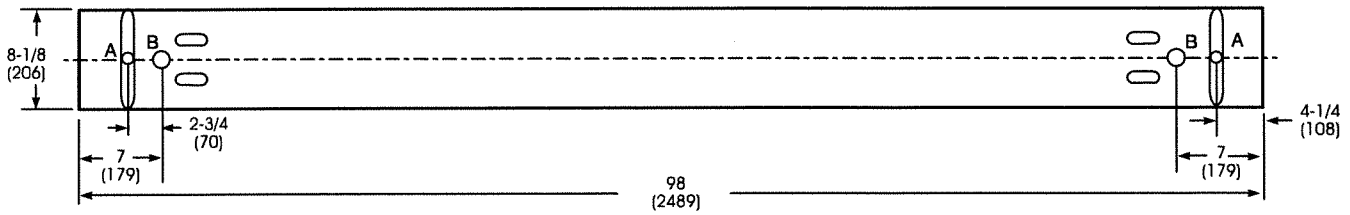
B = 1-1/8 (29) Dia.

Recommended mounting locations (field drilling required)

*8' fixtures are 5-5/8" deep

4' fixtures are 4-5/8" deep





PHOTOMETRICS

Calculated using the zonal cavity method in accordance with IESNA LM41 procedure. Floor reflectances are 20%. Lamp configurations shown are typical. Full photometric data on these and other configurations available upon request.

DM/DMW 1 40

Report LTL 4148

S/MH (along) 1.2 (across) 1.6

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
1	81	76	72	78	74	70	69	66	63
2	72	65	59	70	63	57	59	55	50
3	66	57	49	63	55	48	52	46	42
4	60	50	42	58	48	41	46	40	35
5	54	43	36	52	42	35	40	34	29
10	36	25	19	35	25	18	23	18	14

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	447	14.2	18.3
0-40	759	24.1	31.1
0-60	1459	46.3	59.8
0-90	2282	72.4	93.6
90-180	157	5.0	6.4
0-180	2439	77.4	100.0

DM/DMW 2 40

Report LTL 4147

S/MH (along) 1.3 (across) 1.5

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
1	72	68	65	70	66	63	63	60	58
2	65	59	54	63	57	53	54	50	47
3	59	52	46	57	50	45	47	43	39
4	54	45	39	52	44	38	42	37	33
5	49	40	33	47	39	33	37	32	28
10	33	23	17	31	23	17	22	17	13

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	869	13.8	20.3
0-40	1476	23.4	34.4
0-60	2789	44.3	65.0
0-90	4020	63.8	93.7
90-180	272	4.3	6.3
0-180	4293	68.1	100.0

DM/DMW 2 32

Report LTL 5583

S/MH (along) 1.3 (across) 1.6

Coefficient of Utilization

Ceiling	80%			70%			50%		
Wall	70%	50%	30%	70%	50%	30%	50%	30%	10%
1	82	78	74	80	76	72	71	69	66
2	74	67	61	72	65	60	61	57	53
3	67	58	52	65	57	51	54	48	44
4	61	51	44	59	50	43	47	42	37
5	56	45	38	54	44	37	42	36	31
10	37	26	19	36	25	19	24	19	15

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixture
0-30	884	15.2	19.5
0-40	1511	26.0	33.4
0-60	2883	49.7	63.7
0-90	4260	73.4	94.1
90-180	268	4.6	5.9
0-180	4528	78.1	100.0

LITHONIA LIGHTING®

An AcuityBrands Company

Lithonia Lighting
Acuity Lighting Group, Inc.
Fluorescent
One Lithonia Way, Conyers, GA 30012
Phone: 800-858-7763, Fax: 770-929-8789
In Canada: 1100 50th Ave., Lachine, Quebec H8T 2V3
www.lithonia.com

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F21

Lithonia Lighting

TQ/TQE

LITHONIA LIGHTING

Catalog Number	
Notes	Type

FEATURES & SPECIFICATIONS

INTENDED USE

Ideal for applications where accurate color rendition is critical – signs, entry monuments, residental facades and landscaping.

CONSTRUCTION

Compact, rugged die-cast aluminum housing is ribbed for maximum heat dissipation. TQ has a die-cast aluminum doorframe, TQE lens attaches via tool-less clips. Finish is polyester powder paint for lasting durability.

OPTICAL SYSTEMS

Anodized aluminum reflector with high efficiency and wide beamspread. Tempered glass lens with high temperature gasketing to inhibit entrance of external contaminants.

Double-ended quartz lamp included in carton.

INSTALLATION

Adjustable mounting knuckle with 1/2" NPS threaded stem mounts to standard outlet boxes.

LISTING

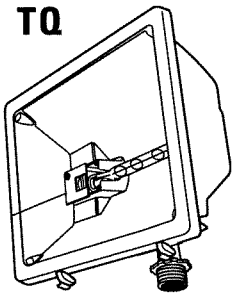
UL/CUL listed suitable for wet locations (25° C maximum ambient temperature).

Floodlighting

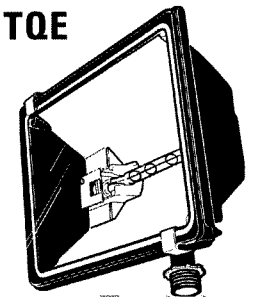
TQ/TQE

500W QUARTZ

TQ



TQE



Height: 6.5" (16.51 cm)
Width: 8.875" (22.54 cm)
Depth: 3.5" (8.89 cm)
Weight: 2.07lbs/.93 kg

ORDERING INFORMATION

Example: **TQE 500 120 LPI**

Choose the boldface catalog nomenclature that best suits your needs and write it on the appropriate line. Order accessories as separate catalog numbers (shipped separately).

Series	500 Wattage /Source	120 Voltage	Options	LPI Lamp
TQE	**500**	**120**	**(blank)** Bronze (standard)	**LPI**
TQ			**DWH** White	

Lithonia Lighting
Acuity Lighting Group, Inc.
Outdoor Lighting
One Lithonia Way, Conyers, GA 30012-3957
Phone: 770-922-9000 Fax: 770-918-1209
In Canada: 1100 50th Ave., Lachine, Quebec H8T 2V3
www.lithonia.com

Site Area Fixture

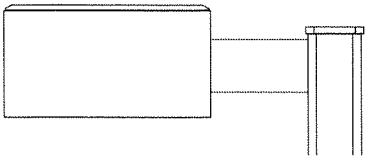
Gardco Lighting

Form 10 Square

Notes:	Job: Type:

FORM 10 SQUARE

EH/H/HT ARM MOUNT



GENERAL DESCRIPTION: The Gardco arm mounted Square Form 10 products are sharp cutoff luminaires for high intensity discharge lamps up to 1000 watts. The EH units are manufactured from mitered extruded aluminum and finished in an Architectural Class 1 anodizing. The H and HT style luminaires are dieformed aluminum with a thermoset polyester finish. Both products can accept one of eight (8) interchangeable and rotatable precision segmented optical systems.

ORDERING

Flat glass lens luminaires meet IESNA Full Cutoff criteria. Sag Lens luminaires meet IESNA Cutoff criteria.

PREFIX	CONFIGURATION	DISTRIBUTION	WATTAGE	VOLTAGE	FINISH	OPTIONS

Enter the order code into the appropriate box above. Note: Gardco reserves the right to refuse a configuration. Not all combinations and configurations are valid. Refer to notes below for exclusions and limitations. For questions or concerns, please consult the factory.

PREFIX

EH14	14" Square Extruded Luminaire
EH19	19" Square Extruded Luminaire
H14	14" Square Fabricated Luminaire
H19	19" Square Fabricated Luminaire
HT19	19" Tall Square Fabricated Luminaire
H26	18" Square Fabricated Luminaire

CONFIGURATION

1	Single Assembly
2	Twin Assembly
2@90	Twin Assembly at 90°
3	Triple at 90°
3@120	Triple at 120°
4	Quad Assembly

DISTRIBUTION

Horizontal Lamp

1	Type I
3	Type III
4X	Type IV *(19/T19 only)*
FM	Type IV
Q	Type V

Type 4X optics supplied with sag glass lens standard.

Vertical Lamp

VS Type V

14" and 19" supplied with acrylic sag lens. 26" supplied with sag glass lens. Medium base, 200w max on 14" units.

FC3V* Full Cutoff Type III

FCVS* Full Cutoff Type V

**19" 320PSMH only. Supplied w/MS320/BU/ED28/LLC/PS lamp*

WATTAGE

14"	19"	T19"	26"
100MH[1]	250MH	750PSMH[9]	1000MH
150MH[1]	400MH	875PSMH[10]	
175MH			750PSMH[9]
200MH	250PSMH[4]	750HPS	1000PSMH[2]
250MH[3]	320PSMH[5]		
	350PSMH		750HPS
175PSMH[2,7]	400PSMH[6]		1000HPS
	450PSMH[2]		
100HPS			
150HPS[3]	250HPS		
	400HPS		

1. Medium base lamp
2. Available with vertical lamp optics only.
3. Operates 55V lamp.
4. M138 or M153.
5. M132 or M154
6. M135 or M155
7. M137 or M152
8. Available with Horizontal optics only.
9. M149 only. Horizontal optics require MS750/PS/BU/HOR/BT37 lamp
10. Requires Sag Glass Lens.

MH Metal Halide
PSMH Pulse Start Metal Halide
HPS High Pressure Sodium

VOLTAGE

120	**240**	**347**	**QUAD**
208	**277**	**480**	*120/208/240/277, Factory tied to 277V.*

FINISH

EH and H26

BLA	Black Anodized
BRA	Bronze Anodized
NA	Natural Aluminum Anodized
OC	Optional Color Paint *Specify RAL designation ex: OC-RAL7024*
SC	Special Color Paint *Specify. Must supply color chip.*

H/HT Style

BRP	Bronze Paint
BLP	Black Paint
OC	Optional Color Paint *Specify RAL designation ex: OC-RAL7024*
SC	Special Color Paint *Specify. Must supply color chip.*

OPTIONS

F	Fusing *In Head*
LF	In-Line/In-Pole Fusing
PC	Photocontrol and Receptacle *N/A with 480V.*
PCR	Photocontrol Receptacle only
POLY	Polycarbonate Sag Lens *In lieu of flat glass. N/A with 4X optics. 450w maximum.*
HS	Internal Houseside Shield *Supplied standard with FM optics.*
QS	Quartz Standby
SG	Sag Glass Lens *In lieu of flat glass* *Supplied standard with 4X optics and 26" VS*
CD	Clear Drop Diffuser *EH Style only*
MF	Mast Arm Fitter
MU	10° Uptilt Bracket
UB	Quick Disconnect for Ballast Tray
AP	Adjustable Knuckle - Pole Mount *Only available with 1 way and 2 @ 180° mounting*
AT	Adjustable Knuckle - Tenon Mount *Fits 2 3/8" tenon. N/A with 14" units*
PTF2	Pole Top Fitter - 2 3/8" Dia. Tenon
PTF3	Pole Top Fitter - 3-3 1/2" Dia. Tenon
PTF4	Pole Top Fitter - 3 1/2-4" Dia. Tenon

Gardco Lighting reserves the right to change materials or modify the design of its product without notification as part of the company's continuing product improvement program. The 4X optical system is protected by U.S. patent number 5690422.

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Genlyte Group

Gardco Lighting
1611 Clovis Barker Road
San Marcos, TX 78666

(800) 227-0758
(512) 753-1000
FAX: (512) 753-7855
www.sitelighting.com

GARDCO LIGHTING

79115-43/0306

FORM 10 SQUARE

EH/H/HT ARM MOUNT

SPECIFICATIONS

GENERAL: Each Gardco Square Form 10 arm mount is a sharp cutoff luminaire for high intensity discharge lamps. Units are designed with half-cube proportions. Internal components are totally enclosed, rain-tight, dust-tight and corrosion resistant. No venting of optical system or electrical components is required or permitted. Luminaires are completely assembled with no disassembly required for installation. Lamping requires no lifting or hinging of the luminaire housing, disturbing wiring or exposing uninsulated live parts.

HOUSING: Extruded housings (EH style) are offered in 14" (35.56 cm) and 19" (48.26 cm) sizes and are composed of precisely mitered anodized aluminum extrusions. Fabricated (H style) units are available in 14" (35.56 cm), 19" (48.26 cm), T19" (48.26 cm) and 26" (66.04 cm) sizes and are one piece, multi-formed aluminum with an integral reinforcing spline and a single concealed joint. Pressure injected silicone provides a continuous weathertight seal at all miters and points of material transition.

ARM: Extruded aluminum arm is prewired and secured to fixture by contractor. Assembly is suitable for mounting to pole without requiring access to luminaire.

LENS: Mitered, extruded anodized aluminum door frame retains the optically clear, heat and impact resistant tempered flat glass in a sealed manner using hollow section, high compliance, memory retentive extruded silicone rubber. Luminaires with Type 4X optics and 26" VS units feature a sag glass lens and VS unit employs sag acrylic lens. Concealed stainless steel latch and hinge permit easy toolless access to the luminaire.

OPTICAL SYSTEMS: The segmented Form 10 optical system is homogeneous sheet aluminum, electrochemically brightened, anodized and sealed. The segmented reflectors are set in faceted arc tube image duplicator patterns to achieve IES Types I (1), III (3), IV (FM), and V (Q - horizontal lamp and VS - vertical lamp) distributions. The mogul lampholder is glazed porcelain with a nickel plated screw shell with lamp grip - all securely attached to the reflector assembly. 100MH units have medium base lampholder. All Metal Halide units in the 19" and 26" housings have lamp stabilizers ensuring precise arc tube positioning.

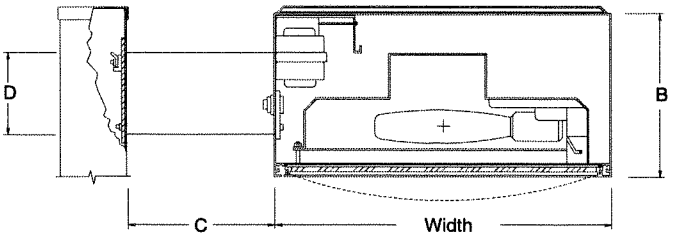
ELECTRICAL: Each high power factor ballast is the separate component type, capable of providing reliable lamp starting down to -20°F/-29°C. The ballast is mounted on a unitized tray and secured within the luminaire, above the reflector system. Component-to-component wiring within the luminaire will carry no more than 80% of rated current and is listed by UL for use at 600 VAC at 150°C or higher. Plug disconnects are listed by UL for use at 600 VAC, 15A or higher.

FINISH: Extruded housings (EH style) are standard with natural, bronze, or black Aluminum Association Architectural Class I anodized finish. Special color polyester finishes are available.

Formed housings (H style) are standard with a chromatic acid pretreatment and an epoxy undercoat. The finish coat is a thermosetting polyester baked at 450°F/232°C to achieve an H-2H hardness measure. 26" H style units are also offered with optional Architectural Class I anodized finish.

LABELS: All fixtures bear UL or CUL (where applicable) Wet Location labels.

DIMENSIONS



Size	Width	B	C 1-2 way	C 3-4 way	D
EH14	14"	7"	6"	6"	5"
	35.56 cm	17.78 cm	15.24 cm	15.24 cm	12.70 cm
H14	14"	7"	2"	6"	5"
	35.56 cm	17.78 cm	5.08 cm	15.24 cm	12.70 cm
EH19	19"	10"	9"	9"	5"
	48.26 cm	25.40 cm	22.86 cm	22.86 cm	12.70 cm
H19	19"	10"	2"	9"	5"
	48.26 cm	25.40 cm	5.08 cm	22.86 cm	12.70 cm
T19	19"	12"	2"	9"	5"
	48.26 cm	30.48 cm	5.08 cm	22.86 cm	12.70 cm
26	26"	12"	12"	12"	8"
	66.04 cm	30.48 cm	30.48 cm	30.48 cm	20.32 cm

Size	EPA's Single	EPA's Twin	EPA's 3/4	Approximate Weight Single	Approximate Weight Twin	Approximate Weight Quad
14	1.1 ft²	2.3 ft²	2.9 ft²	30 lbs	60 lbs	120 lbs
	.10 m²	.21 m²	.27 m²	13.61 kg	27.22 kg	54.43 kg
19	2.1 ft²	4.0 ft²	5.5 ft²	55 lbs	110 lbs	220 lbs
	.20 m²	.37 m²	.51 m²	24.95 kg	49.90 kg	99.79 kg
T19	2.2 ft²	4.3 ft²	6.4 ft²	65 lbs	130 lbs	260 lbs
	.20 m²	.40 m²	.59 m²	29.48 kg	58.97 kg	117.93 kg
26	3.5 ft²	7.0 ft²	8.9 ft²	95 lbs	190 lbs	380 lbs
	.33 m²	.65 m²	.83 m²	43.09 kg	86.18 kg	172.37 kg

Gardco Lighting reserves the right to change materials or modify the design of its product without notification as part of the company's continuing product improvement program. The 4X optical system is protected by U.S. patent number 5690422.

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GARDCO LIGHTING

79115-43/0306

P. Electrical Equipment Manufacturer's Data

P-1 Extron® Electronics – Architectural Adapter Plates (AAPs)

Architectural Adapter Plates

Architectural Adapter Plates (AAPs)

Extron **Architectural Adapter Plates (AAPs)** are optional mounting plates that fit into designated AAP openings available on many Extron products. AAPs include pass-through connections and active modules, as well as device control modules. There are also AAPs available with silkscreened labels for the most common signal types and blank AAPs to fill empty slots.

Standard AAP

Silkscreened AAP

Custom Engraving

Customized engraving is available. See page 161.

SELECTING THE RIGHT ARCHITECTURAL ADAPTER PLATE (AAP)

Installation

Installation AAPs are terminated on the back side with solder cups, solder lug terminals, bare wires or punch block. Installation type AAPs may require more time for installation, but are the most economical adapter plates.

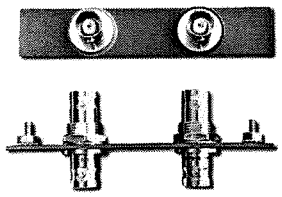
Barrel/Adapter

Barrel type AAPs are terminated on the back with the same connector type and gender found on the front panel; an Adapter type has a different back connector than found on the front panel. Barrel/Adapter connectors provide easy installation using pre terminated cables.

Quick Connect

Most Quick Connect AAPs are terminated on the back with captive screw terminals or short pigtail wires to BNC connectors. This time-saving design provides quick installation to bare wires—no soldering required.

Video AAPs

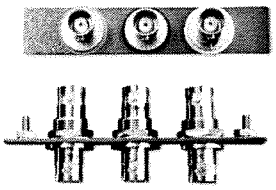


(2) BNC Female to Female Barrels

Type: Barrel/Adapter

Size: Single Space

70-091-11 (black)
70-091-21 (white)
70-091-51 (RAL9010)
70-091-01 (gray)

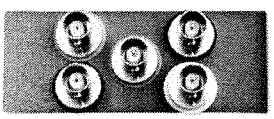


(3) BNC Female to Female Barrels

Type: Barrel/Adapter

Size: Single Space

70-091-12 (black)
70-091-22 (white)
70-091-52 (RAL9010)
70-091-02 (gray)



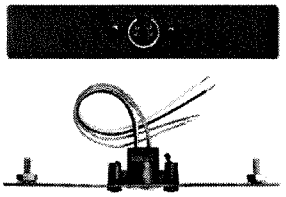
(5) BNC Female to Female Barrels

Type: Barrel/Adapter

Size: Double Space

70-091-13 (black)
70-091-23 (white)
70-091-53 (RAL9010)
70-091-03 (gray)

Video AAPs

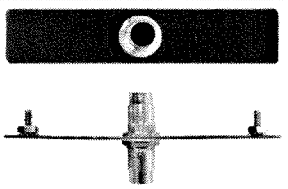


NEW **(1) 4-pin Mini DIN Female to Bare Wires (S-Video)**

Type: Installation

Size: Single Space

70-415-11 (black)
70-415-21 (white)
70-415-51 (RAL9010)
70-415-01 (gray)

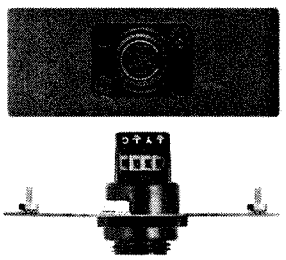


NEW **(1) 4-pin Mini DIN Female to Female Barrel (S-Video)**

Type: Barrel/Adapter

Size: Single Space

70-416-11 (black)
70-416-21 (white)
70-416-51 (RAL9010)
70-416-01 (gray)



NEW **(1) 4-pin Mini DIN Female to Captive Screw Terminal (S-Video)**

Type: Quick Connect

Size: Double Space

70-417-11 (black)
70-417-21 (white)
70-417-51 (RAL9010)
70-417-01 (gray)

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Architectural Adapter Plates (continued)...

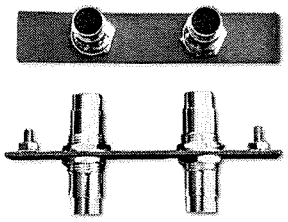
Video AAPs

NEW **(1) 4-pin Mini DIN Female to (2) BNC Female on 4" Pigtails**

Type: Quick Connect

Size: Single Space

70-405-11 (black)
70-405-21 (white)
70-405-51 (RAL9010)
70-405-01 (gray)

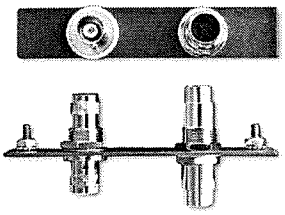


(2) S-video Female to Female Barrels

Type: Barrel/Adapter

Size: Single Space

70-095-11 (black)
70-095-21 (white)
70-095-51 (RAL9010)
70-095-01 (gray)

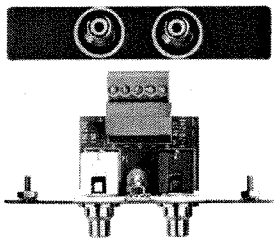


(1) S-video Female to Female Barrel
(1) BNC Female to Female Barrel

Type: Barrel/Adapter

Size: Single Space

70-107-11 (black)
70-107-21 (white)
70-107-51 (RAL9010)
70-107-01 (gray)

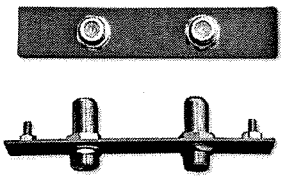


NEW **(2) RCA: Pass-Through Female RCA to Captive Screw Terminal**

Type: Quick Connect

Size: Single Space

70-329-11 (black)
70-329-21 (white)
70-329-51 (RAL9010)
70-329-01 (gray)



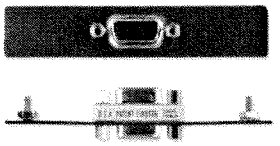
(2) F-Connector Female to Female Barrels

Type: Barrel/Adapter

Size: Single Space

70-096-11 (black)
70-096-21 (white)
70-096-51 (RAL9010)
70-096-01 (gray)

Video AAPs

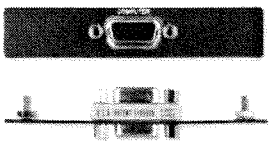


(1) 15-pin HD Female to Female Barrel

Type: Barrel/Adapter

Size: Single Space

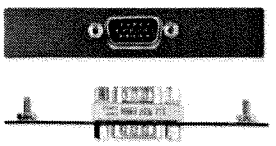
70-101-11 (black)
70-101-21 (white)
70-101-51 (RAL9010)
70-101-01 (gray)



Same model w/standard silkscreening:

"COMPUTER"

70-101-71 (black)
70-101-81 (white)
70-101-91 (RAL9010)
70-101-61 (gray)



(1) 15-pin HD Male to Male Barrel

Type: Barrel/Adapter

Size: Single Space

70-101-12 (black)
70-101-22 (white)
70-101-52 (RAI9010)
70-101-02 (gray)

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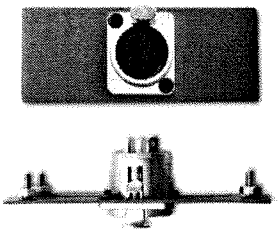
Architectural Adapter Plates (continued)...

Audio AAPs

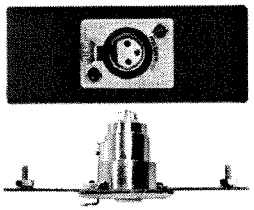


(1) XLR 3-pin Female to Solder Cup

Type: Installation

Size: Double Space

70-103-11 (black)
70-103-21 (white)
70-103-51 (RAL9010)
70-103-01 (gray)

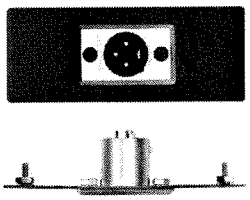


NEW (1) XLR 3-pin Female to Solder Cups (Switchcraft)

Type: Installation

Size: Double Space

70-419-11 (black)
70-419-21 (white)
70-419-51 (RAL9010)
70-419-01 (gray)

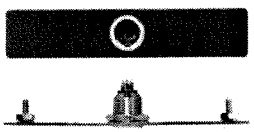


NEW (1) XLR 3-pin Male to Solder Cups (Cannon)

Type: Installation

Size: Double Space

70-432-11 (black)
70-432-21 (white)
70-432-51 (RAL9010)
70-432-01 (gray)

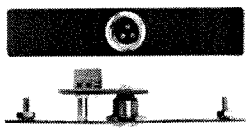


NEW (1) Mini XLR 3-pin Male to Solder Cups (Switchcraft)

Type: Installation

Size: Single Space

70-427-11 (black)
70-427-21 (white)
70-427-51 (RAL9010)
70-427-01 (gray)

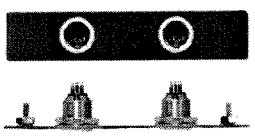


NEW (1) Mini XLR 3-pin Male to Captive Screw Terminal (Switchcraft)

Type: Quick Connect

Size: Single Space

70-430-11 (black)
70-430-21 (white)
70-430-51 (RAL9010)
70-430-01 (gray)



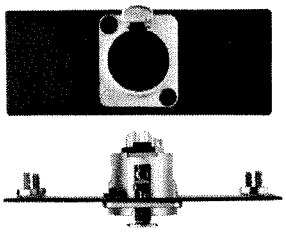
NEW (2) Mini XLR 3-pin Male to Solder Cups (Switchcraft)

Type: Installation

Size: Single Space

70-428-11 (black)
70-428-21 (white)
70-428-51 (RAL9010)
70-428-01 (gray)

Audio AAPs

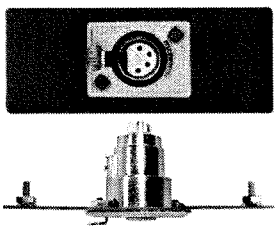


NEW (1) XLR 4-pin Female to Solder Cups (Switchcraft)

Type: Installation

Size: Double Space

70-103-12 (black)
70-103-22 (white)
70-103-52 (RAL9010)
70-103-02 (gray)

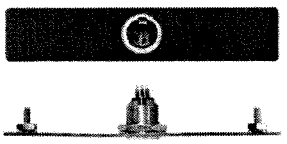


NEW (1) XLR 4-pin Female to Solder Cups (Switchcraft)

Type: Installation

Size: Double Space

70-421-11 (black)
70-421-21 (white)
70-421-51 (RAL9010)
70-421-01 (gray)

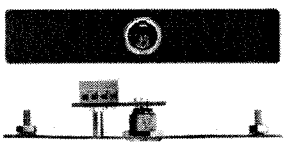


NEW (1) Mini XLR 4-pin Male to Solder Cups (Switchcraft)

Type: Installation

Size: Single Space

70-429-11 (black)
70-429-21 (white)
70-429-51 (RAL9010)
70-429-01 (gray)

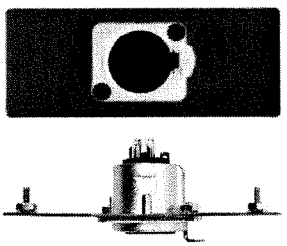


NEW (1) Mini XLR 4-pin Male to Captive Screw Terminal (Switchcraft)

Type: Quick Connect

Size: Single Space

70-431-11 (black)
70-431-21 (white)
70-431-51 (RAL9010)
70-431-01 (gray)

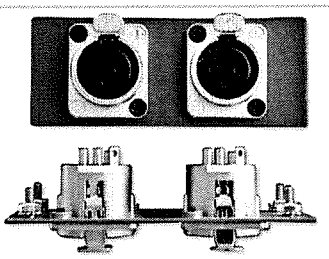


NEW (1) XLR 5-pin Female to Solder Cups (Neutrik)

Type: Installation

Size: Double Space

70-422-11 (black)
70-422-21 (white)
70-422-51 (RAL9010)
70-422-01 (gray)



(2) XLR 3-pin Female to Solder Cup

Type: Installation

Size: Double Space

70-103-14 (black)
70-103-24 (white)
70-103-54 (RAL9010)
70-103-04 (gray)

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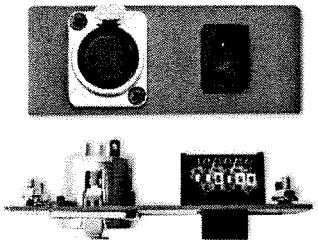
Japan +81.3.3511.7655

Architectural Adapter Plates (continued)...

Audio AAPs

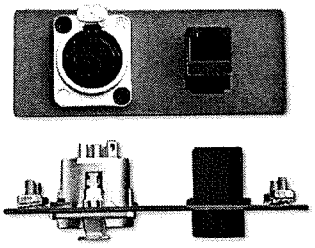


(1) XLR 3-pin Female
(1) RJ-11

Type: Installation

Size: Double Space

70-103-15 (black)
70-103-25 (white)
70-103-55 (RAL9010)
70-103-05 (gray)

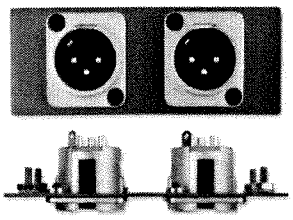


(1) XLR 3-pin Female
(1) RJ-45

Type: Barrel & Installation

Size: Double Space

70-103-16 (black)
70-103-26 (white)
70-103-56 (RAL9010)
70-103-06 (gray)

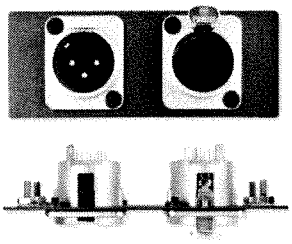


(2) XLR 3-pin Male to Solder Cups

Type: Installation

Size: Double Space

70-103-17 (black)
70-103-27 (white)
70-103-57 (RAL9010)
70-103-07 (gray)

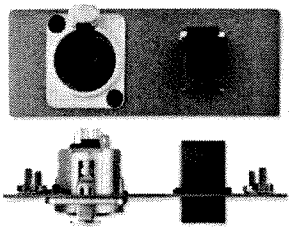


(1) XLR 3-pin Female to Solder Cups
(1) XLR 3-pin Male to Solder Cups

Type: Installation

Size: Double Space

70-103-18 (black)
70-103-28 (white)
70-103-58 (RAL9010)
70-103-08 (gray)

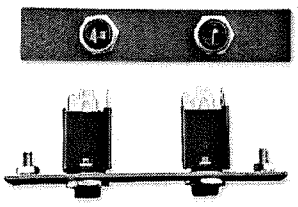


(1) XLR 4-pin Female to Solder Cups
(1) RJ-45 Pass-Through

Type: Barrel & Installation

Size: Double Space

70-103-19 (black)
70-103-29 (white)
70-103-59 (RAL9010)
70-103-09 (gray)



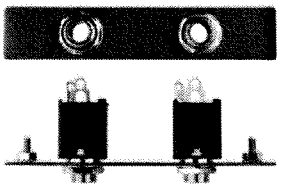
(2) 1/4" Female Stereo Phone to Solder Tabs

Type: Installation

Size: Single Space

70-097-11 (black)
70-097-21 (white)
70-097-51 (RAL9010)
70-097-01 (gray)

Audio AAPs

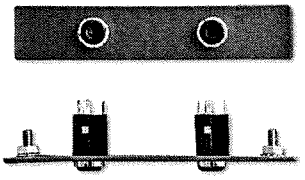


(2) 1/4" Female Mono Phone to Solder Tabs

Type: Installation

Size: Single Space

70-097-12 (black)
70-097-22 (white)
70-097-52 (RAL9010)
70-097-02 (gray)

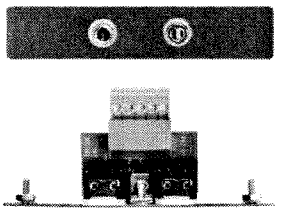


(2) 3.5 mm Stereo Mini Jack to Solder Tabs

Type: Installation

Size: Single Space

70-098-11 (black)
70-098-21 (white)
70-098-51 (RAL9010)
70-098-01 (gray)



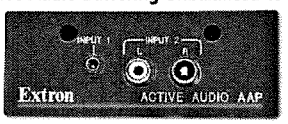
NEW (2) 3.5 mm Stereo Mini Jack to Captive Screw Terminal

Type: Quick Connect

Size: Single Space

70-331-11 (black)
70-331-21 (white)
70-331-51 (RAL9010)
70-331-01 (gray)

Active Audio Buffering Unbalanced to Balanced Stereo Audio

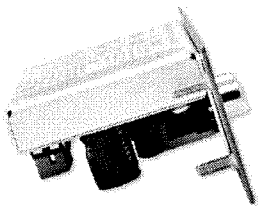


(1) 3.5 mm Stereo Mini Jack
(2) RCA Female

Type: Quick Connect

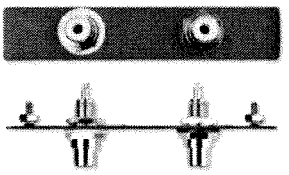
Size: Double Space

70-110-13 (black)
70-110-23 (white)
70-110-53 (RAL9010)
70-110-03 (gray)



For Installation in RGB 168xi

70-110-04 (gray)

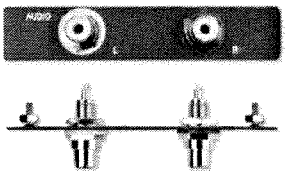


(2) RCA Female to Solder Cups

Type: Installation

Size: Single Space

70-092-11 (black)
70-092-21 (white)
70-092-51 (RAL9010)
70-092-01 (gray)



Same model w/standard silkscreening:

"AUDIO", "L", "R"

70-092-71 (black)
70-092-81 (white)
70-092-91 (gray)
70-092-61 (gray)

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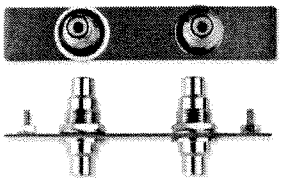
Architectural Adapter Plates (continued)...

Audio AAPs

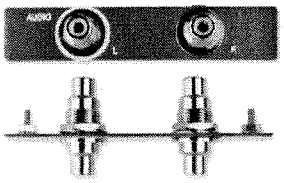


(2) RCA Female to Female Barrels

Type: Barrel/Adapter

Size: Single Space

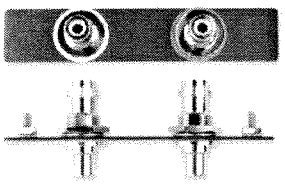
70-093-11 (black)
70-093-21 (white)
70-093-51 (RAL9010)
70-093-01 (gray)



Same model w/standard silkscreening:

"AUDIO", "L", "R"

70-093-71 (black)
70-093-81 (white)
70-093-91 (RAL9010)
70-093-61 (gray)

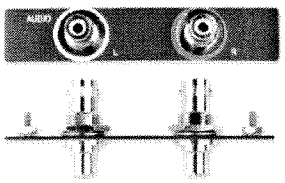


(2) RCA Female to BNC Female Adapters

Type: Barrel/Adapter

Size: Single Space

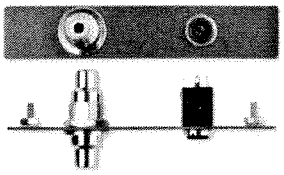
70-094-11 (black)
70-094-21 (white)
70-094-51 (RAL9010)
70-094-01 (gray)



Same model w/standard silkscreening:

"AUDIO", "L", "R"

70-094-71 (black)
70-094-81 (white)
70-094-91 (RAL9010)
70-094-61 (gray)

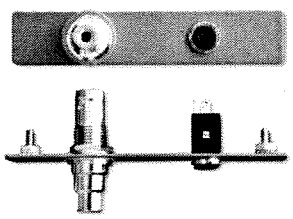


(1) RCA Female to Female Barrel
(1) 3.5 mm Stereo Mini Jack to Solder Tabs

Type: Barrel & Installation

Size: Single Space

70-109-11 (black)
70-109-21 (white)
70-109-51 (RAL9010)
70-109-01 (gray)



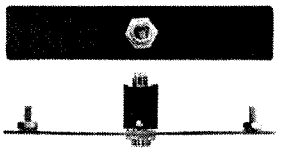
(1) RCA Female to BNC Female Adapter
(1) 3.5 mm Stereo Mini Jack to Solder Tabs

Type: Barrel & Installation

Size: Single Space

70-109-12 (black)
70-109-22 (white)
70-109-52 (RAL9010
70-109-02 (gray)

Audio AAPs

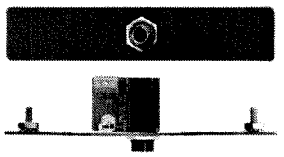


NEW **(1) 1/4" Female Stereo Phone to Solder Tabs**

Type: Installation

Size: Single Space

70-324-11 (black)
70-324-21 (white)
70-324-51 (RAL9010)
70-324-01 (gray)

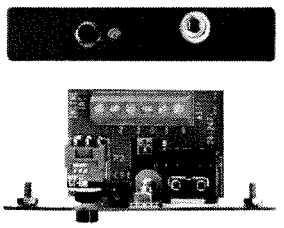


NEW **(1) 1/4" Stereo Phone Female to Captive Screw Terminal**

Type: Quick Connect

Size: Single Space

70-325-11 (black)
70-325-21 (white)
70-325-51 (RAL9010)
70-325-01 (gray)

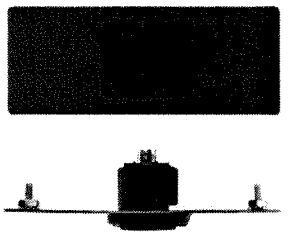


NEW **(1) Contact Closure Switch (Single Pole) with External LED**
(1) 3.5 mm Stereo Mini Jack

Type: Quick Connect

Size: Single Space

70-327-11 (black)
70-327-21 (white)
70-327-51 (RAL9010)
70-327-01 (gray)

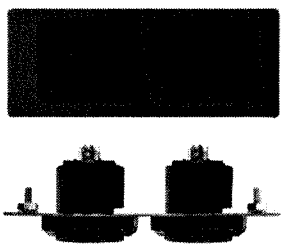


NEW **(1) Neutrik Speakon Male to Solder Tabs - 4 Pole Connector**

Type: Installation

Size: Double Space

70-323-12 (black)
70-323-22 (white)
70-323-52 (RAL9010)
70-323-02 (gray)



NEW **(2) Neutrik Speakon Male to Solder Tabs - 4 Pole Connector**

Type: Installation

Size: Double Space

70-449-12 (black)
70-449-22 (white)
70-449-52 (RAL9010)
70-449-02 (gray)

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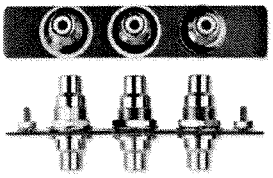
Architectural Adapter Plates (continued)...

Audio/Video AAPs

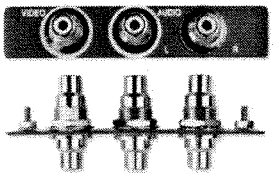


(3) RCA Female to Female Barrels

Type: Barrel/Adapter

Size: Single Space

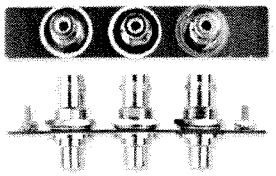
70-093-12 (black)
70-093-22 (white)
70-093-52 (RAL9010)
70-093-02 (gray)



Same model w/standard silkscreening:

"VIDEO", "AUDIO", "L", "R"

70-093-72 (black)
70-093-82 (white)
70-093-92 (RAL9010)
70-093-62 (gray)

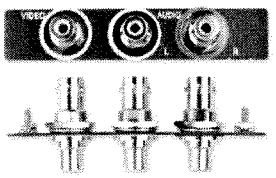


(3) RCA Female to BNC Female Adapters

Type: Barrel/Adapter

Size: Single Space

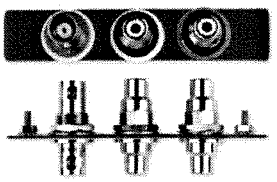
70-094-12 (black)
70-094-22 (white)
70-094-52 (RAL9010)
70-094-02 (gray)



Same model w/standard silkscreening:

"VIDEO", "AUDIO", "L", "R"

70-094-72 (black)
70-094-82 (white)
70-094-92 (RAL9010)
70-094-62 (gray)

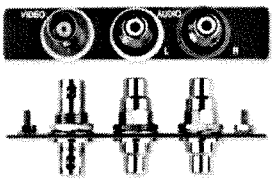


(1) BNC Female to Female Barrel
(2) RCA Female to Female Barrels

Type: Barrel/Adapter

Size: Single Space

70-108-11 (black)
70-108-21 (white)
70-108-51 (RAL9010)
70-108-01 (gray)

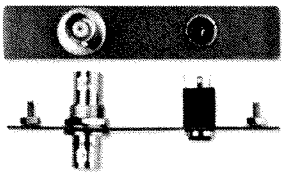


Same model w/standard silkscreening:

"VIDEO", "AUDIO", "L", "R"

70-108-71 (black)
70-108-81 (white)
70-108-91 (RAL9010)
70-108-61 (gray)

Audio/Video AAPs

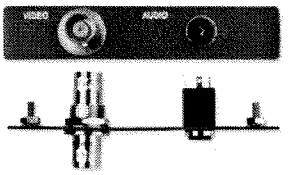


(1) BNC Female to Female Barrel
(1) 3.5 mm Stereo Mini Jack to Solder Tabs

Type: Barrel & Installation

Size: Single Space

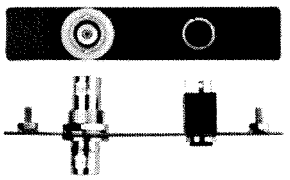
70-108-12 (black)
70-108-22 (white)
70-108-52 (RAL9010)
70-108-02 (gray)



Same model w/standard silkscreening:

"VIDEO", "AUDIO"

70-108-72 (black)
70-108-82 (white)
70-108-92 RAL9010)
70-108-62 (gray)

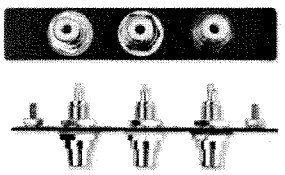


NEW **(1) BNC Male to Male Barrel**
(1) 3.5 mm Stereo Mini Jack to Solder Tabs

Type: Barrel & Installation

Size: Single Space

70-328-11 (black)
70-328-21 (white)
70-328-51 (RAL9010)
70-328-01 (gray)

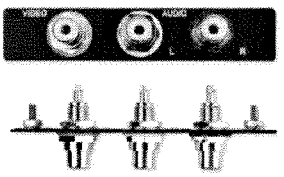


(3) RCA Female to Solder Cup

Type: Installation

Size: Single Space

70-092-12 (black)
70-092-22 (white)
70-092-52 (RAL9010)
70-092-02 (gray)



Same model w/standard silkscreening:

"VIDEO", "AUDIO", "L", "R"

70-092-72 (black)
70-092-82 (white)
70-092-92 (RAL9010)
70-092-62 (gray)

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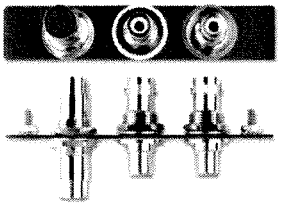
Architectural Adapter Plates (continued)...

Audio/Video AAPs

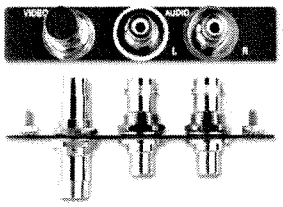


(1) S-video Female to Female Barrel
(2) RCA Female to BNC Female Adapters

Type: Barrel/Adapter

Size: Single Space

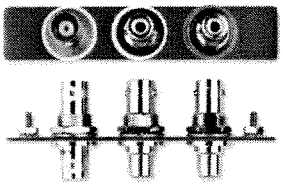
70-107-17 (black)
70-107-27 (white)
70-107-57 (RAL9010)
70-107-07 (gray)



Same model w/standard silkscreening:

"VIDEO", "AUDIO", "L", "R"

70-107-77 (black)
70-107-87 (white)
70-107-97 (RAL9010)
70-107-67 (gray)

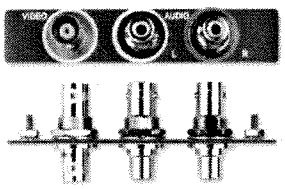


(1) BNC Female to Female Barrel
(2) RCA Female to BNC Female Adapters

Type: Barrel/Adapter

Size: Single Space

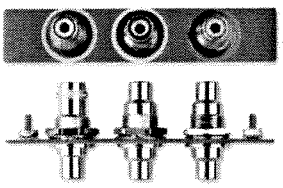
70-108-13 (black)
70-108-23 (white)
70-108-53 (RAL9010)
70-108-03 (gray)



Same model w/standard silkscreening:

"VIDEO", "AUDIO", "L", "R"

70-108-73 (black)
70-108-83 (white)
70-108-93 (RAL9010)
70-108-63 (gray)

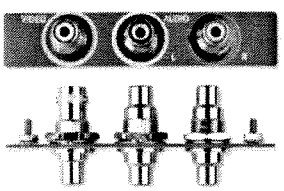


(1) RCA Female to BNC Female Adapter
(2) RCA Female to Female Barrels

Type: Barrel/Adapter

Size: Single Space

70-109-13 (black)
70-109-23 (white)
70-109-53 (RAL9010)
70-109-03 (gray)

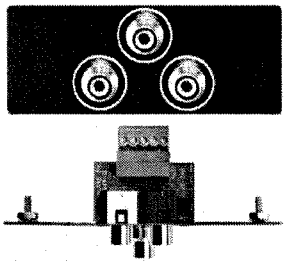


Same model w/standard silkscreening:

"VIDEO", "AUDIO", "L", "R"

70-109-73 (black)
70-109-83 (white)
70-109-93 (RAL9010)
70-109-63 (gray)

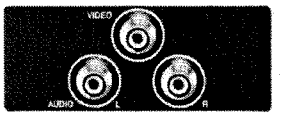
Audio/Video AAPs



NEW **(2) RCA Female to Captive Screw Terminal - Audio: Red/White (1) RCA Female to Female Barrel - Video: Yellow Type:** Quick Connect

Size: Double Space

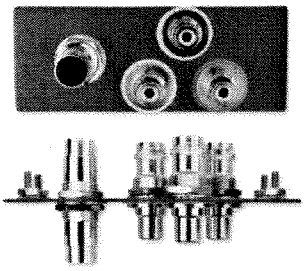
70-401-11 (black)
70-401-21 (white)
70-401-51 (RAL9010)
70-401-01 (gray)



Same model w/standard silkscreening:

"VIDEO", "AUDIO", "L", "R"

70-401-71 (black)
70-401-81 (white)
70-401-91 (RAL9010)
70-401-61 (gray)

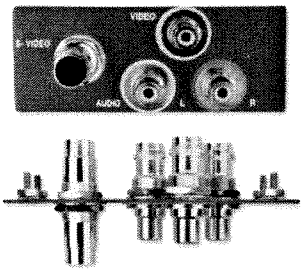


(1) S-video Female to Female Barrel
(3) RCA Female to BNC Female Adapters

Type: Barrel/Adapter

Size: Double Space

70-107-16 (black)
70-107-26 (white)
70-107-56 (RAL9010)
70-107-06 (gray)



Same model w/standard silkscreening:

"S-VIDEO", "VIDEO", "AUDIO", "L", "R"

70-107-76 (black)
70-107-86 (white)
70-107-96 (RAL9010)
70-107-66 (gray)

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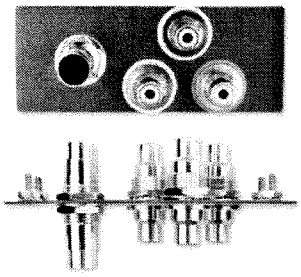
Architectural Adapter Plates (continued)...

Audio/Video AAPs

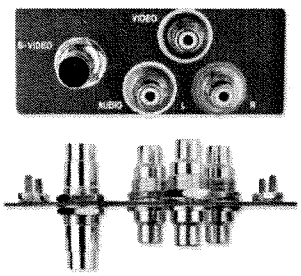


(1) S-video Female to Female Barrel
(3) RCA Female to Female Barrels

Type: Barrel/Adapter

Size: Double Space

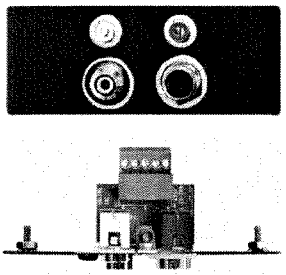
70-107-12 (black)
70-107-22 (white)
70-107-52 (RAL9010)
70-107-02 (gray)



Same model w/standard silkscreening:

"S-VIDEO", "VIDEO", "AUDIO", "L", "R"

70-107-72 (black)
70-107-82 (white)
70-107-92 (RAL9010)
70-107-62 (gray)

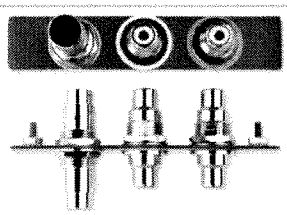


NEW **(2) RCA Female to Captive Screw Terminal - Audio: Red/White**
(1) RCA Female to Female Barrel - Video: Yellow
(1) S-video Female to Female Barrel

Type: Quick Connect

Size: Double Space

70-330-11 (black)
70-330-21 (white)
70-330-51 (RAL9010)
70-330-01 (gray)

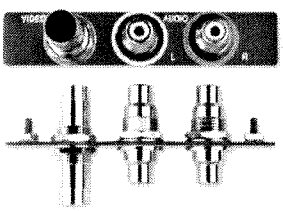


(1) S-video Female to Female Barrel
(2) RCA Female to Female Barrels

Type: Barrel/Adapter

Size: Single Space

70-107-13 (black)
70-107-23 (white)
70-107-53 (RAL9010)
70-107-03 (gray)

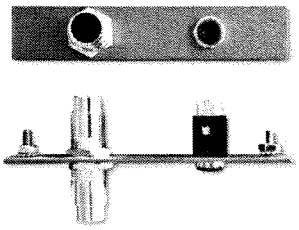


Same model w/standard silkscreening:

"VIDEO", "AUDIO", "L", "R"

70-107-73 (black)
70-107-83 (white)
70-107-93 (RAL9010)
70-107-63 (gray)

Audio/Video AAPs

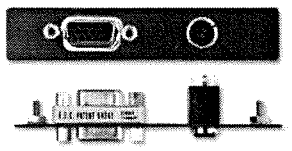


(1) S-video Female to Female Barrel
(1) 3.5 mm Stereo Mini Jack to Solder Tabs

Type: Barrel & Installation

Size: Single Space

70-107-15 (black)
70-107-25 (white)
70-107-55 (RAL9010)
70-107-05 (gray)

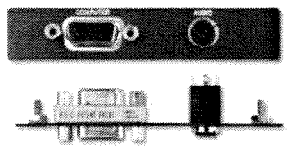


(1) 15-pin HD Female to Female Barrel
(1) 3.5 mm Stereo Mini Jack to Solder Tabs

Type: Barrel & Installation

Size: Single Space

70-101-13 (black)
70-101-23 (white)
70-101-53 (RAL9010)
70-101-03 (gray)



Same model w/standard silkscreening:

"COMPUTER", "AUDIO"

70-101-73 (black)
70-101-83 (white)
70-101-93 (RAL9010)
70-101-63 (gray)

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Architectural Adapter Plates (continued)...

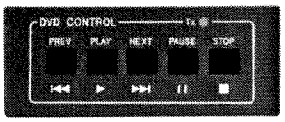
Control/Computer AAPs

MMX 32 AAP
Provides input selection buttons and LED indicators for remote control of one output on an MMX 32 VGA A matrix switcher

Type: Quick Connect

Size: Single Space

70-277-11 (black)
70-277-21 (white)
70-277-51 (RAL9010)
70-277-01 (gray)

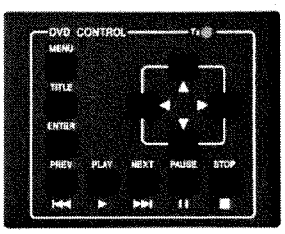


IRCM-DVD
DVD IR Control Module

Type: Quick Connect

Size: Double Space

70-149-02 (black)
70-149-03 (white)
70-149-05 (RAL9010)
70-149-01 (gray)

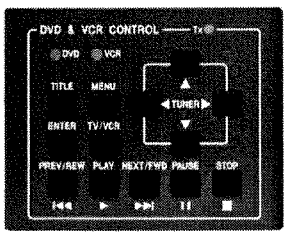


IRCM-DVD+
DVD IR Control Module

Type: Quick Connect

Size: Quad Space

70-179-02 (black)
70-179-03 (white)
70-179-05 (RAL9010)
70-179-01 (gray)

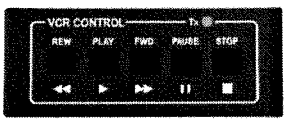


IRCM-DV+
Dual function DVD and VCR IR Control Module

Type: Quick Connect

Size: Quad Space

70-220-02 (black)
70-220-03 (white)
70-220-05 (RAL9010)
70-220-01 (gray)



IRCM-VCR
VCR IR Control Module

Type: Quick Connect

Size: Quad Space

70-148-02 (black)
70-148-03 (white)
70-148-05 (RAL9010)
70-148-01 (gray)

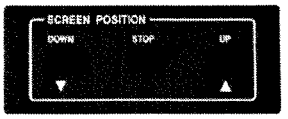
IRCM-Tape
Tape Deck IR Control Module

Type: Quick Connect

Size: Double Space

70-180-02 (black)
70-180-03 (white)
70-180-05 (RAL9010)
70-180-01 (gray)

Control/Computer AAPs

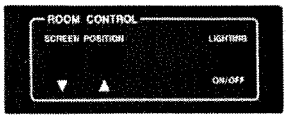


RCM-SC
Screen Relay Control Module

Type: Quick Connect

Size: Double Space

70-183-02 (black)
70-183-03 (white)
70-183-05 (RAL9010)
70-183-01 (gray)

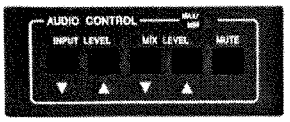


RCM-SCLT
Screen and Lighting Relay Control Module

Type: Quick Connect

Size: Double Space

70-184-02 (black)
70-184-03 (white)
70-184-05 (RAL9010)
70-184-01 (gray)

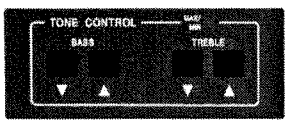


ACM-Level
Audio Control Module

Type: Quick Connect

Size: Double Space

70-182-02 (black)
70-182-03 (white)
70-182-05 (RAL9010)
70-182-01 (gray)

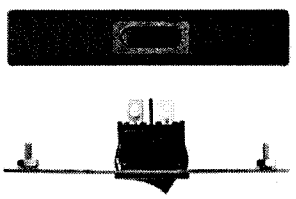


ACM-Tone
Audio Control Module

Type: Quick Connect

Size: Double Space

70-182-02 (black)
70-182-03 (white)
70-182-05 (RAL9010)
70-182-01 (gray)



NEW **(1) Rocker Switch: (Latching - Single Pole - Single Throw)**

Type: Installation

Size: Single Space

70-406-11 (black)
70-406-21 (white)
70-406-51 (RAL9010)
70-406-01 (gray)

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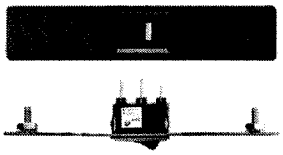
Architectural Adapter Plates (continued)...

Control/Computer AAPs

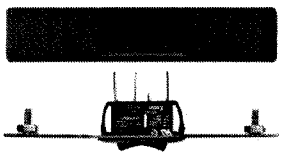


NEW **(1) Switch with Integral LED: (Latching - Single Pole - Single Throw)**

Type: Installation

Size: Single Space

70-407-11 (black)
70-407-21 (white)
70-407-51 (RALS9010)
70-407-01 (gray)

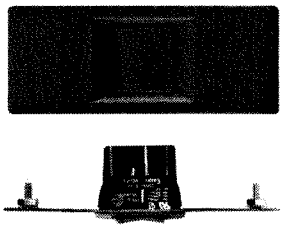


NEW **(1) Switch: (Latching - Single Pole - Double Throw)**

Type: Installation

Size: Single Space

70-408-11 (black)
70-408-21 (white)
70-408-51 (RALS9010)
70-408-01 (gray)

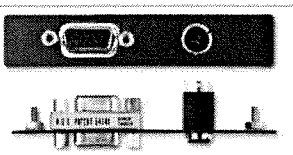


NEW **(1) Switch: (Latching - Double Pole - Double Throw)**

Type: Installation

Size: Double Space

70-409-11 (black)
70-409-21 (white)
70-409-51 (RALS9010)
70-409-01 (gray)

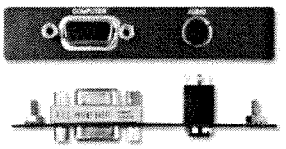


(1) 15-pin HD Female to Female Barrel
(1) 3.5 mm Stereo Mini Jack to Solder Tabs

Type: Barrel & Installation

Size: Single Space

70-101-13 (black)
70-101-23 (white)
70-101-05 (RALS9010)
70-101-03 (gray)

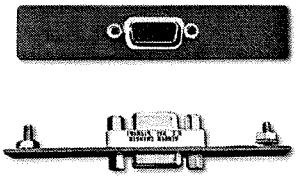


Same model w/standard silkscreening:

"COMPUTER", "AUDIO"

70-101-73 (black)
70-101-83 (white)
70-101-93 (RALS9010)
70-101-63 (gray)

Control/Computer AAPs

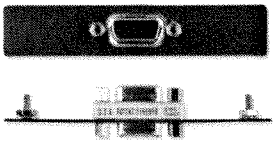


(1) 9-pin D Female to Female Barrel

Type: Barrel/Adapter

Size: Single Space

70-102-11 (black)
70-102-21 (white)
70-102-51 (RALS9010)
70-102-01 (gray)

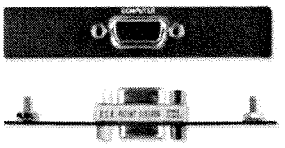


(1) 15-pin HD Female to Female Barrel

Type: Barrel/Adapter

Size: Single Space

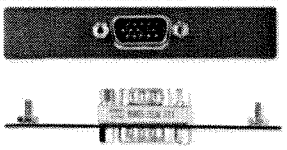
70-101-11 (black)
70-101-21 (white)
70-101-51 (RALS9010)
70-101-01 (gray)



Same model w/standard silkscreening:

"COMPUTER"

70-101-71 (black)
70-101-81 (white)
70-101-91 (RALS9010)
70-101-61 (gray)

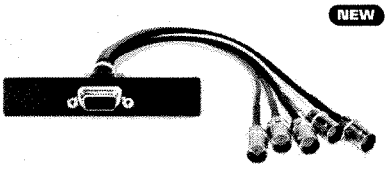


(1) 15-pin HD Male to Male Barrel

Type: Barrel/Adapter

Size: Single Space

70-101-12 (black)
70-101-22 (white)
70-101-52 (RALS9010)
70-101-02 (gray)

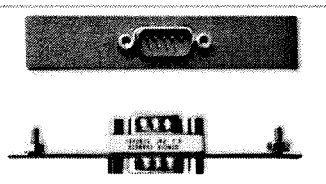


NEW **(1) 15-pin Female to (5) BNC on 4" Pigtails**

Type: Quick Connect

Size: Single Space

70-404-11 (black)
70-404-21 (white)
70-404-51 (RALS9010)
70-404-01 (gray)



(1) 9-pin D Male to Male Barrel

Type: Barrel/Adapter

Size: Single Space

70-102-12 (black)
70-102-22 (white)
70-102-52 (RALS9010)
70-102-02 (gray)

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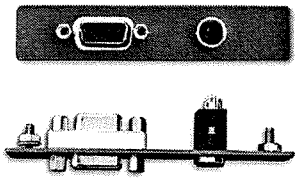
Architectural Adapter Plates (continued)...

Control/Computer AAPs

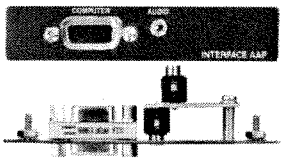


(1) 9-pin D Female to Female Barrel
(1) 3.5 mm Stereo Mini Jack to Solder Tabs

Type: Barrel & Installation

Size: Single Space

70-102-13 (black)
70-102-23 (white)
70-102-53 (RAL9010)
70-102-03 (gray)

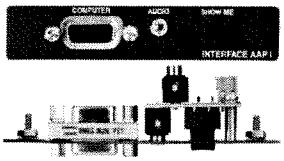


Interface AAP
15-pin HD female pass-through and 3.5 mm stereo audio jack

Type: Barrel/Adapter

Size: Single Space

70-161-11 (black)
70-161-21 (white)
70-161-51 (RAL9010)
70-161-01 (gray)

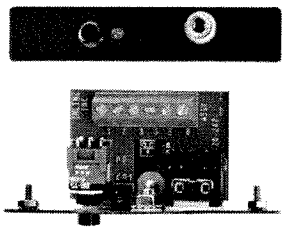


Interface AAP with Audio Contact Closure
15-pin HD female pass-through, 3.5 mm stereo audio jack, and contact closure switch for input selection

Type: Quick Connect

Size: Single Space

70-162-11 (black)
70-162-21 (white)
70-162-51 (RAL9010)
70-162-01 (gray)

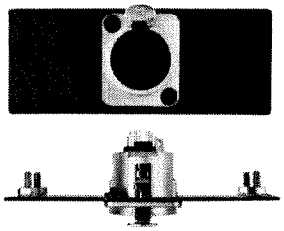


NEW **(1) Contact Closure Switch (Single Pole) with External LED**
(1) 3.5 mm Stereo Mini Jack

Type: Quick Connect

Size: Single Space

70-327-11 (black)
70-327-21 (white)
70-327-51 (RAL9010)
70-327-01 (gray)



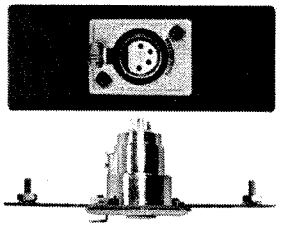
(1) XLR 4-pin Female to Solder Cups

Type: Installation

Size: Double Space

70-103-12 (black)
70-103-22 (white)
70-103-52 (RAL9010)
70-103-02 (gray)

Control/Computer AAPs

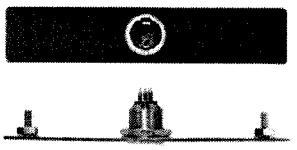


NEW **(1) XLR 4-pin Female to Solder Cups (Switchcraft)**

Type: Installation

Size: Double Space

70-421-11 (black)
70-421-21 (white)
70-421-51 (RAL9010)
70-421-01 (gray)

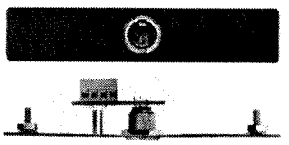


NEW **(1) Mini XLR 4-pin Male to Solder Cups (Switchcraft)**

Type: Installation

Size: Single Space

70-429-11 (black)
70-429-21 (white)
70-429-51 (RAL9010)
70-429-01 (gray)

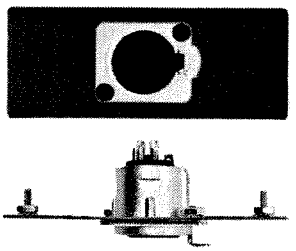


NEW **(1) Mini XLR 4-pin Male to Captive Screw Terminal (Switchcraft)**

Type: Quick Connect

Size: Single Space

70-431-11 (black)
70-431-21 (white)
70-431-51 (RAL9010)
70-431-01 (gray)

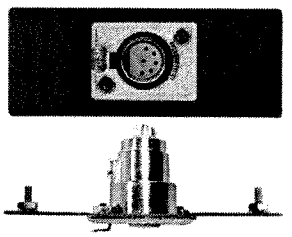


NEW **(1) XLR 5-pin Female to Solder Cups (Neutrik)**

Type: Installation

Size: Double Space

70-422-11 (black)
70-422-21 (white)
70-422-51 (RAL9010)
70-422-01 (gray)

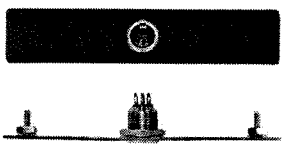


NEW **(1) XLR 6-pin Female to Solder Cups (Switchcraft)**

Type: Installation

Size: Double Space

70-424-11 (black)
70-424-21 (white)
70-424-51 (RAL9010)
70-424-01 (gray)



NEW **(1) Mini XLR 6-pin Male to Solder Cups (Switchcraft)**

Type: Installation

Size: Single Space

70-426-11 (black)
70-426-21 (white)
70-426-51 (RAL9010)
70-426-01 (gray)

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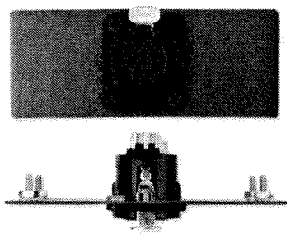
Architectural Adapter Plates (continued)...

Control/Computer AAPs

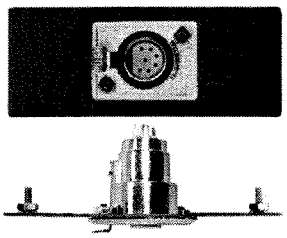


(1) XLR 6-pin Female to Solder Cups (Neutrik)

Type: Installation

Size: Double Space

70-103-13 (black)
70-103-23 (white)
70-103-53 (RAL9010)
70-103-03 (gray)

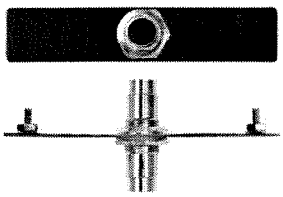


NEW **(1) XLR 7-pin Female to Solder Cups (Switchcraft)**

Type: Installation

Size: Double Space

70-425-11 (black)
70-425-21 (white)
70-425-51 (RAL9010)
70-425-01 (gray)

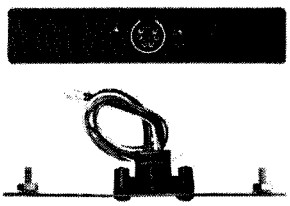


NEW **(1) 6-pin Mini DIN Female to Female Barrel - Keyboard/Mouse**

Type: Barrel/Adapter

Size: Single Space

70-333-11 (black)
70-333-21 (white)
70-333-51 (RAL9010)
70-333-01 (gray)

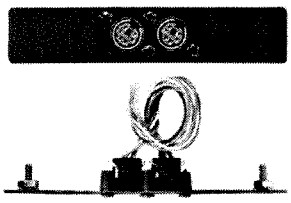


NEW **(1) 6-pin Mini DIN Female to Bare Wires - Keyboard/Mouse**

Type: Barrel/Adapter

Size: Single Space

70-353-11 (black)
70-353-21 (white)
70-353-51 (RAL9010)
70-353-01 (gray)

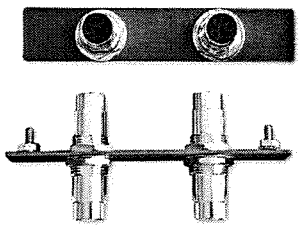


NEW **(1) 6-pin Mini DIN Female to Bare Wires - Keyboard/Mouse**

Type: Barrel/Adapter

Size: Single Space

70-403-11 (black)
70-403-21 (white)
70-403-51 (RAL9010)
70-403-01 (gray)



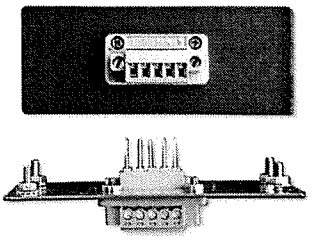
(2) 6-pin Mini DIN Female to Female Barrels

Type: Barrel/Adapter

Size: Single Space

70-104-11 (black)
70-104-21 (white)
70-104-51 (RAL9010)
70-104-01 (gray)

Control/Computer AAPs

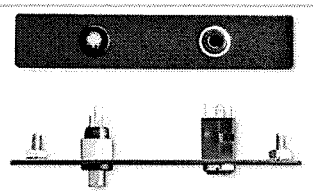


(1) 3.8 mm 5-pin Captive Screw Terminal Connector

Type: Installation

Size: Double Space

70-105-11 (black)
70-105-21 (white)
70-105-51 (RAL9010)
70-105-01 (gray)

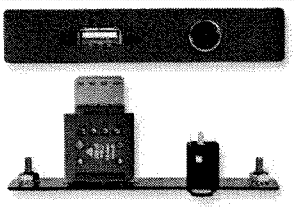


(1) Push Button Contact Closure Switch
(1) 3.5 mm Stereo Mini Jack to Solder Tabs

Type: Installation

Size: Single Space

70-106-11 (black)
70-106-21 (white)
70-106-51 (RAL9010)
70-106-01 (gray)

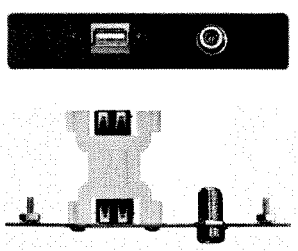


(1) USB to 4-pin Captive Screw Terminal Connector
(1) 3.5 mm Stereo Mini Jack to Solder Tabs

Type: Installation

Size: Single Space

70-249-02 (black)
70-249-03 (white)
70-249-05 (RAL9010)
70-249-01 (gray)

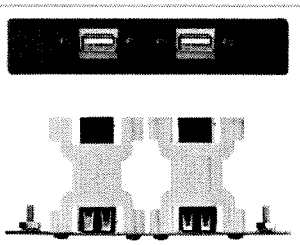


NEW **(1) USB A Female to Female Barrel**
(1) F Connector Female to Female Barrel

Type: Barrel/Adapter

Size: Single Space

70-453-11 (black)
70-453-21 (white)
70-453-51 (RAL9010)
70-453-01 (gray)

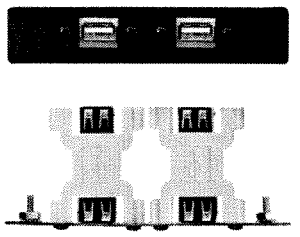


NEW **(2) USB A Female to USB B Female Adapters**

Type: Barrel/Adapter

Size: Single Space

70-382-11 (black)
70-382-21 (white)
70-382-51 (RAL9010)
70-382-01 (gray)



NEW **(2) USB A Female to Female Barrels**

Type: Barrel/Adapter

Size: Single Space

70-454-11 (black)
70-454-21 (white)
70-454-51 (RAL9010)
70-454-01 (gray)

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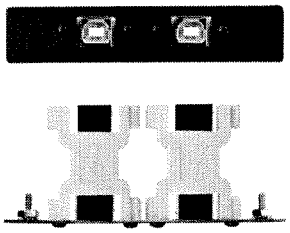
Architectural Adapter Plates (continued)...

Control/Computer AAPs

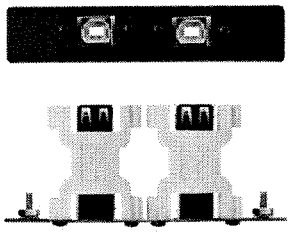


NEW **(2) USB B Female to Female Barrels**

Type: Barrel/Adapter

Size: Single Space

70-456-11 (black)
70-456-21 (white)
70-456-51 (RAL9010)
70-456-01 (gray)

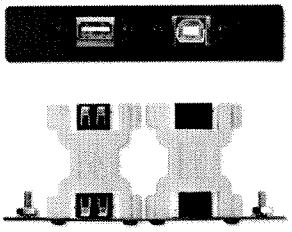


NEW **(2) USB B Female to USB A Female Adapters**

Type: Barrel/Adapter

Size: Single Space

70-458-11 (black)
70-458-21 (white)
70-458-51 (RAL9010)
70-458-01 (gray)

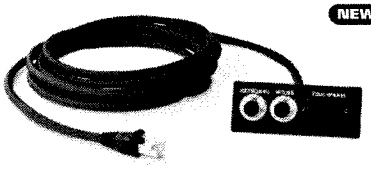


NEW **(1) USB A Female to Female Barrel**
(1) USB B Female to Female Barrel

Type: Barrel/Adapter

Size: Single Space

70-423-11 (black)
70-423-21 (white)
70-423-51 (RAL9010)
70-423-01 (gray)



NEW **(2) 6-pin Mini DIN Female to Female Barrels**
(1) Mounting Space for Crestron TPSBLOCK-10*

Type: Barrel/Adapter

Size: Double Space

70-393-11 (black)
70-393-21 (white)
70-393-51 (RAL9010)
70-393-01 (gray)

*TPSBLOCK-10 is not included and must be ordered from Crestron

AAPs for Crestron TPSBLOCK-10*

Single Space

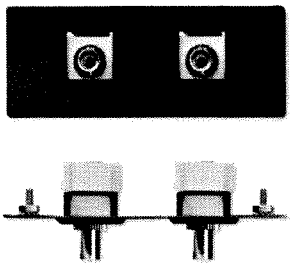
70-195-11 (black)
70-195-21 (white)
70-195-51 (RAL9010)
70-195-01 (gray)

Double Space

70-196-12 (black)
70-196-22 (white)
70-196-52 (RAL9010)
70-196-02 (gray)

*TPSBLOCK-10 is not included and must be ordered from Crestron

Data/Phone AAPs

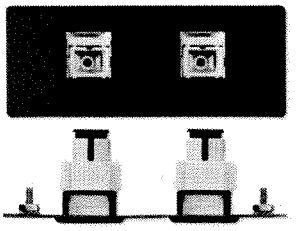


NEW **(2) Fiber ST F/F**

Type: Barrel/Adapter

Size: Double Space

70-463-11 (black)
70-463-21 (white)
70-463-51 (RAL9010)
70-463-01 (gray)

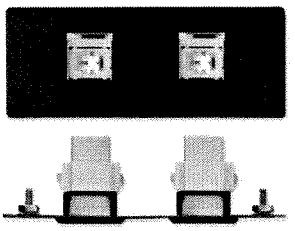


NEW **(2) Fiber SC F/F**

Type: Barrel/Adapter

Size: Double Space

70-464-11 (black)
70-464-21 (white)
70-464-51 (RAL9010)
70-464-01 (gray)

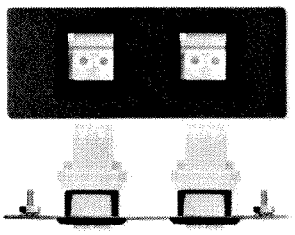


NEW **(2) Fiber MTRJ F/F**

Type: Barrel/Adapter

Size: Double Space

70-465-11 (black)
70-465-21 (white)
70-465-51 (RAL9010)
70-465-01 (gray)

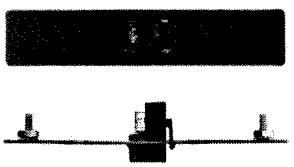


NEW **(2) Fiber Duplex LC F/F**

Type: Barrel/Adapter

Size: Double Space

70-466-11 (black)
70-466-21 (white)
70-466-51 (RAL9010)
70-466-01 (gray)



NEW **(1) RJ-11 Female to Punch Down Block - Phone**

Type: Installation

Size: Single Space

70-410-11 (black)
70-410-21 (white)
70-410-51 (RAL9010)
70-410-01 (gray)

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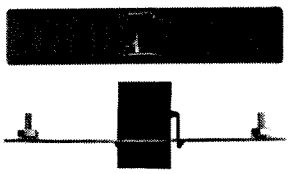
Architectural Adapter Plates (continued)...

Data/Phone AAPs

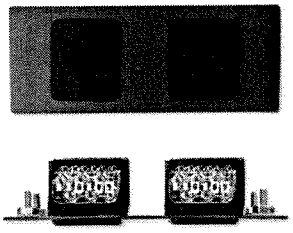


NEW **(1) RJ-11 Female Barrel - Phone**

Type:Barrel/Adapter

Size: Single Space

70-411-11 (black)
70-411-21 (white)
70-411-51 (RAL9010)
70-411-01 (gray)

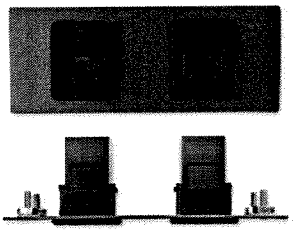


(2) RJ-11 (Terminal Post)

Type: Installation

Size: Double Space

70-099-11 (black)
70-099-21 (white)
70-099-51 (RAL9010)
70-099-01 (gray)

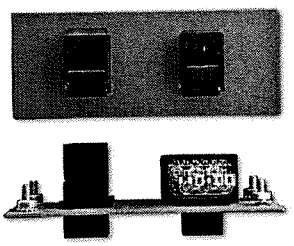


(2) RJ-45 Female to Female Barrels

Type: Double Space

Size: Barrel

70-100-11 (black)
70-100-21 (white)
70-100-51 (RAL9010)
70-100-01 (gray)

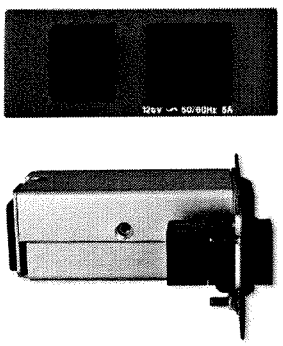


(1) RJ-11 (Terminal Post)
(1) RJ-45 Female to Female Barrel

Type: Barrel & Installation

Size: Double Space

70-100-12 (black)
70-100-22 (white)
70-100-52 (RAL9010)
70-100-02 (gray)



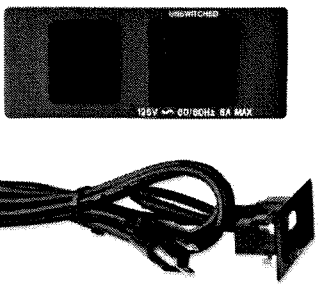
AC Net AAP
(1) Edison (USA) AC Outlet
(1) RJ-11 and (1) RJ-45 Jack Supplied

Type: Barrel/Adapter

Size: Double Space

70-150-02 (black)
70-150-03 (white)
70-105-05 (RAL9010)
70-150-01 (gray)

Data/Phone AAPs

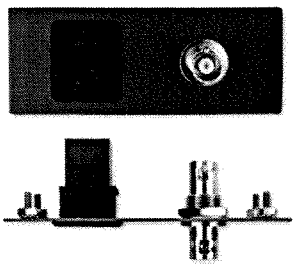


HSA AC Net AAP
(1) Edison (USA) AC Outlet
(1) RJ-11 and (1) RJ-45 Jacks Supplied

Type: Barrel/Adapter

Size: Double Space

70-211-01 (black)
70-211-05 (RAL9010)

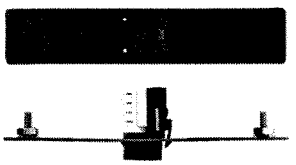


(1) RJ-45 Female to Female Barrel
(1) BNC Female to Female Barrel

Type: Barrel/Adapter

Size: Double Space

70-100-13 (black)
70-100-23 (white)
70-100-53 (RAL9010)
70-100-03 (gray)

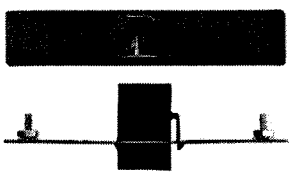


NEW **(1) RJ-45 Female to Punch Down Block - Data**

Type: Installation

Size: Single Space

70-412-11 (black)
70-412-21 (white)
70-412-51 (RAL9010)
70-412-01 (gray)

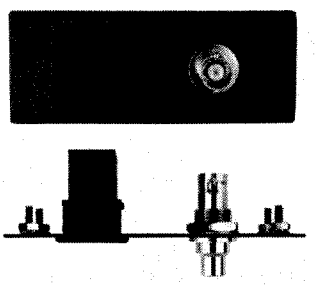


NEW **(1) RJ-45 Female to Female Barrel - Data**

Type: Barrel/Adapter

Size: Single Space

70-402-11 (black)
70-402-21 (white)
70-402-51 (RAL9010)
70-402-01 (gray)



NEW **(1) RJ-45 Female to Female Barrel**
(1) RCA Female to BNC Female Adapter

Type: Barrel/Adapter

Size: Double Space

70-460-11 (black)
70-460-21 (white)
70-460-51 (RAL9010)
70-460-01 (gray)

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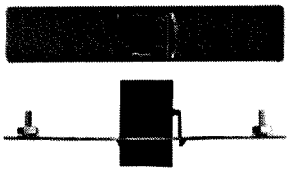
Architectural Adapter Plates (continued)...

Data/Phone AAPs

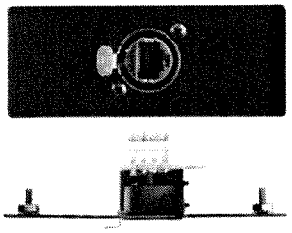


NEW **(1) RJ-45 Female to Female Barrel for CAT6 - Leviton XCS Series**

Type: Installation

Size: Single Space

70-414-11 (black)
70-414-21 (white)
70-414-51 (RAL9010)
70-414-01 (gray)

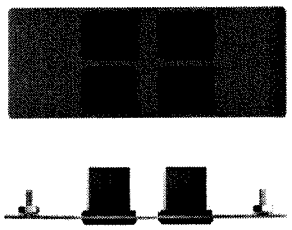


NEW **(1) RJ-45 Female to Punch Down Block - Neutrik EtherCon Ruggedized Connector**

Type: Installation

Size: Double Space

70-413-11 (black)
70-413-21 (white)
70-413-51 (RAL9010)
70-413-01 (gray)

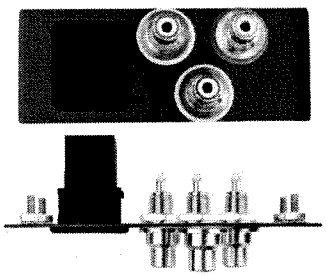


NEW **(4) RJ-45 Female to Female Barrels**

Type: Barrel/Adapter

Size: Triple Space

70-452-11 (black)
70-452-21 (white)
70-452-51 (RAL9010)
70-452-01 (gray)



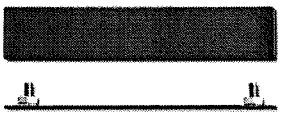
NEW **(1) RJ-45 Female to Female Barrel**
(3) RCA Female to Solder Cups

Type: Barrel & Installation

Size: Double Space

70-332-11 (black)
70-332-21 (white)
70-332-51 (RAL9010)
70-332-01 (gray)

Blank Plates (No Connectors)



Blank Plate - Single

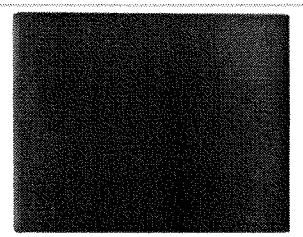
Size: Single Space

70-090-11 (black)
70-090-21 (white)
70-090-51 (RAL9010)
70-090-01 (gray)

Blank Plate - Double

Size: Double Space

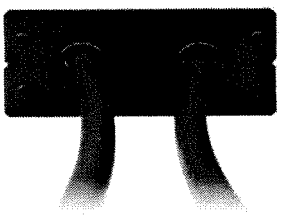
70-090-12 (black)
70-090-22 (white)
70-090-52 (RAL9010)
70-090-02 (gray)



Blank Plate - Quad

Size: Quad Space

70-090-14 (black)
70-090-24 (white)
70-090-54 (RAL9010)
70-090-04 (gray)



Cable Clamp/Pass Through for Extron RGB 168xi, RGB 198 and SW 2 VGA DA2 AF R

70-127-01 (black)

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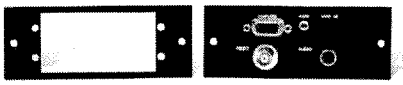
P-2 Extron® Electronics – AAP Mounting Frames

Architectural Adapter Plates (AAPs)

AAP Mounting Frames

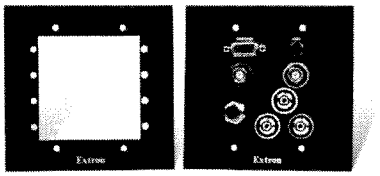
The Extron **AAP 100**, **AAP 200**, and **AAP 300** Series of wall plates, floor plates, and rack panels with Architectural Adapter Plate (AAP) openings are designed for easy installation in a wall, podium, desk, or rack. AAPs are sold separately.



AAP 100

The Extron **AAP 100** is an AAP mounting plate with a compact, low-profile design. No junction box is required; the AAP 100 can be mounted directly to a table, podium, or other flat surface. It can accommodate up to two single space AAP modules. This plate is available in black or white. (AAPs sold separately.) Dimensions: 1.75" x 4.5" x 0.1" (4.5 x 11.4 x 0.25 cm)

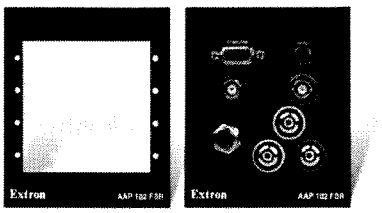
MODEL	PART #
AAP 100 (black)	60-593-02
AAP 100 (white)	60-593-03
AAP 100 (RAL9010 white)	60-593-05



AAP 102

The Extron **AAP 102** is a two-gang size wall plate with openings for up to four single space AAPs. (AAPs sold separately.) Dimensions: 4.5" x 4.6" x 0.1" (11.4 x 11.7 x 0.25 cm)

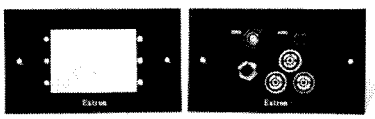
MODEL	PART #
AAP 102 (black)	60-300-02
AAP 102 (white)	60-300-03
AAP 102 (RAL9010 white)	60-300-05
AAP 102 (gray)	60-300-01



AAP 102 FSR

The Extron **AAP 102 FSR** fits in a FSR floorbox and includes an opening for up to four single space AAPs. It is available in Extron black. (AAPs sold separately.) Dimensions: 4.5" x 3.6" x 0.1" (11.4 x 9.1 x 0.25 cm)

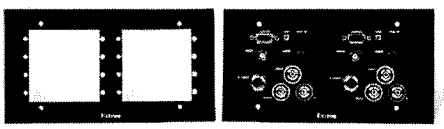
MODEL	PART #
AAP 102 FSR (black)	60-301-40



AAP 102 MK

The Extron **AAP 102 MK** fits in two-gang MK boxes (UK, Singapore, and Australia) and includes openings for up to three single space AAPs. It is available in gray, black, or white. (AAPs sold separately.) Dimensions: 3.4" x 5.7" x 0.1" (8.6 x 14.5 x 0.25 cm)

MODEL	PART #
AAP 102 MK (black)	60-533-02
AAP 102 MK (white)	60-533-03
AAP 102 MK (RAL9010)	60-533-05
AAP 102 MK (gray)	60-533-01



AAP 104

The Extron **AAP 104** is a four-gang size wall plate with openings for up to eight single space AAPs. (AAPs sold separately.) Dimensions: 4.5" x 8.3" x 0.1" (11.4 x 21.2 x 0.25 cm)

MODEL	PART #
AAP 104 (black)	60-301-02
AAP 104 (white)	60-301-03
AAP 104 (RAL9010 white)	60-301-05
AAP 104 (gray)	60-301-01

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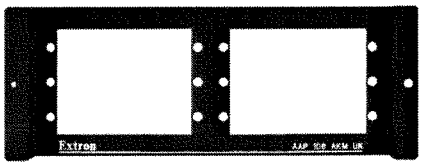
AAP Mounting Frames (continued)...

AAP 106

The Extron AAP 106 is a six-gang size wall plate with openings for up to 12 single space AAPs. (AAPs sold separately.) Dimensions: 4.5" x 11.95" x 0.1" (11.4 x 30.4 x 0.25 cm)

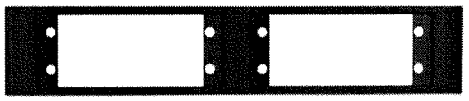
MODEL	PART #
AAP 106 (black)	60-531-02
AAP 106 (white)	60-531-03
AAP 106 (RAL9010 white)	60-531-05
AAP 106 (gray)	60-531-01



AAP 106 AKM UK NEW

The Extron AAP 106 AKM UK is a recessed mounting frame for Ackermann UK floor boxes with openings for up to six single space AAPs. (AAPs sold separately.) Gray finish. Dimensions: 3.0" x 7.6" x 0.06" (7.6 x 19.3 x 0.15 cm)

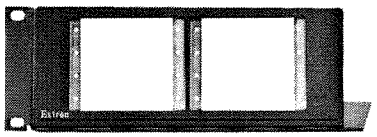
MODEL	PART #
AAP 106 AKM UK (gray)	60-628-01



AAP 201

The Extron **AAP 201** is a half rack width, 1U faceplate for use with the Extron 1U rack shelf part # 60-190-01. It includes openings for up to four single space AAPs. (AAPs and rack shelf sold separately.)

MODEL	PART #
AAP 201 (black)	60-302-02
AAP 201 (white)	60-302-03
AAP 201 (gray)	60-302-01



AAP 202

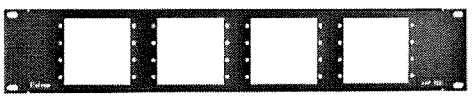
The Extron **AAP 202** is a half rack width, 2U faceplate for use with the Extron 2U rack shelf part # 60-032-01. It includes openings for up to eight single space AAPss. (AAPs and rack shelf sold separately.)

MODEL	PART #
AAP 202 (black)	60-303-02
AAP 202 (white)	60-303-03
AAP 202 (gray)	60-303-01

AAP 301

The Extron **AAP 301** is a 1U high metal panel that provides system integration of Extron's many AAP options to create custom pass-through connections and/or control module solutions for any rack. The AAP 301 has four AAP openings that can be populated with up to eight single space or four double space AAPs. Blank AAP panels are included to fill unused openings. The AAP 301 is available in Extron gray only.

MODEL	PART #
AAP 301 (black)	60-459-02
AAP 301 (white)	60-459-03
AAP 301 (gray)	60-459-01



AAP 302

The Extron **AAP 302** is a 2U high metal panel that provides system integration of Extron's many AAP options to create custom pass-through connections and/or control module solutions for any rack. The AAP 302 has four AAP openings that can be populated with up to 16 single space AAPs. Blank AAP panels are included to fill unused openings.

MODEL	PART #
AAP 302 (black)	60-633-02
AAP 302 (white)	60-633-03
AAP 302 (gray)	60-633-01

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P-3 Wiremold – Flush Style Poke-Thru Devices

WIREMOLD

legrand®

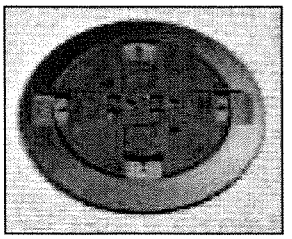
Flush Style Poke-Thru Devices
RC3, RC4, RC7, RC9, RC9AMD, AV3 & AMD8 Series

Bring Power and Communication Services Directly to the Workstation

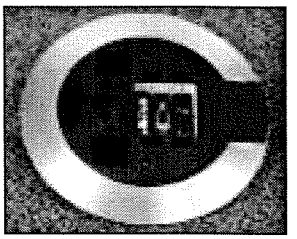
TOPGUARD™ *Protection from water, dirt, and debris.*

Walker Flush Style Poke-Thru Devices are an excellent solution for bringing power, communication, and audio/video services to the workstation in an open space, above-grade floor environment. All Walker Flush Poke-Thru Devices come with built-in TopGuard™ protection, an industry-leading design that meets and exceeds UL scrub water exclusion requirements for tile and carpet floors. Topguard protection prevents water, dirt, or debris from entering not just the power devices, but also the communication devices.

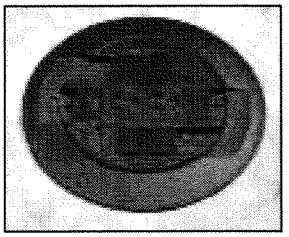
All Walker Flush Poke-Thru Devices can be installed on tile, carpet, or wood floors. Each of these devices provides an excellent solution for both new or retrofit construction, with typical applications that include office buildings, airports, malls, shopping centers, libraries, and schools.



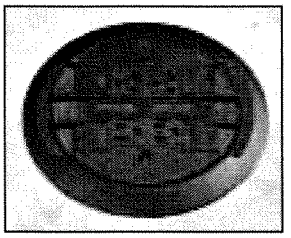
RC7 Flush Poke-Thru Series



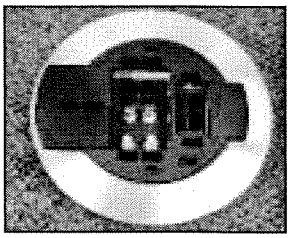
AV3 Flush Poke-Thru Series



RC3 Flush Poke-Thru Series



RC4 Flush Poke-Thru Series



AMD8 All Communication Flush Poke-Thru Series

Features & Benefits

- **The new AV3 Series is specifically designed to meet the growing needs of the audio and video market.** The AV3 Series accepts the Extron® MAAP Series mini architectural adapter plates. The MAAP line includes passive A/V connector plates that support a wide variety of video, audio, control, voice and data connectors, as well as active modules such as VGA line drivers, audio buffers and twisted pair transmitters. (Extron devices sold separately only through authorized Extron dealers.)
- **The new AMD8 Series is designed to meet the growing need for more communication capacity at the workstation.** The AMD8 is the largest capacity all communication poke-thru device on the market, providing up to 8-ports for communication devices. The AMD8 is a flush style device with individual slide covers to prevent water, dirt and debris from entering the communication devices.
- **TopGuard Protection.** Integral design component that prevents water, dirt and debris from entering power and communication compartments. Whenever you see the TopGuard protection icon on any Wiremold product, you'll know it meets and exceeds UL scrub water exclusion requirements for tile and carpet floors.
- **UL Listed and UL Fire Classified to U.S. and Canadian safety standards for tile and terrazzo.** Includes the new UL requirements under UL514A and UL 514C for the scrub water exclusion test for carpet and wood floors.
- **Multiple service capability.** RC7, RC3, and RC4 Series provide power and communication services. The RC3 and RC4 Series provide for use of flush or recessed fiber optic devices. Eliminates the cost of a second poke-thru to accommodate additional services.
- **Provides flexibility with a single poke-thru unit.** 20A duplex receptacle in the RC3, and the RC7 Series can be wired as standard or isolated ground receptacle. Two 20A duplex power receptacles in the RC4 Series are wired with a 6-wire system with individual neutral and ground wires, and can be wired for standard or isolated ground. RC9 quad 15A receptacle can also be wired as standard or isolated ground receptacle.
- **Individual slide covers.** Protects power and communication devices. Power slide covers snap back into place when receptacle is not in use. Activate either power or communication services, simultaneously or individually. RC9AMD Series is the only all communication poke-thru device with slide cover protection.
- **Datacom connectivity options.** Accepts industry standard and proprietary devices from a wide range of manufacturers to provide a seamless and aesthetically pleasing interface for voice, data, audio, and video applications at the point-of-use.
- **"Step-on-it" installation.** Quick and easy installation without the need for additional fasteners or a second installer.
- **Suitable for use in air handling spaces.** In accordance with Sec 300-22(C) of the National Electrical Code.
- **Meets ADA Accessibility Guidelines.** Wide trim flange on the product is designed to meet the ADA Accessibility Guidelines as it pertains to ADA Standard 4.5 which addresses changes in floor and ground surface levels. The poke-thru trim flanges are beveled so the slope is no greater than 1:2 ratio.
- **Fire rated for up to 2-hour rated floors.** Maintains the fire classification of the floor.

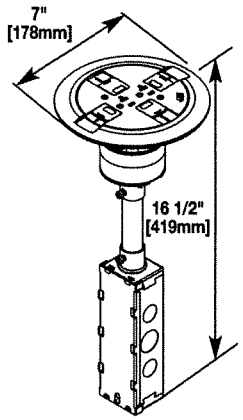
RC7 Series Ordering Information

Catalog No./Item	Description/Specifications

Catalog Number Explanation
RC7ATCAL

RC7	A	TC	AL
Identifies Poke-Thru Series	Identifies Assembled Unit (A) or Cover (C)	Identifies that Unit is Approved for Tile and Carpet Floors	Identifies Color of Finish Flange

RC7ATCGY
RC7ATCBK
RC7ATCAL
RC7ATCBS
RC7ATCVY
RC7ATCAB

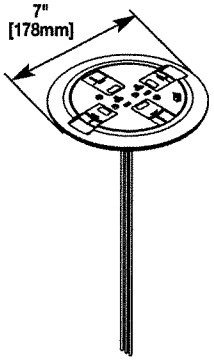


Assembled Unit – Prewired 20A duplex receptacle can be wired as standard duplex or isolated ground. Flange available in painted gray (GY), black (BK), ivory (VY), brass flange and brass colored cover (AB), or brushed metal finishes in aluminum (AL) and brass (BS). Slide covers match the painted flange colors: gray, black, and ivory. Aluminum and brass flanges shipped with black slide cover. Brass flange also available with nonmetallic brass colored slide holder. Wiremold open system unloaded inserts to accept two discrete keystone connectors from most manufacturers are provided. Other 2A Pass & Seymour Network Wiring inserts can be ordered separately.

ORT P&S OPEN

- Includes two Cat 6 TechChoice™ discrete keystone connectors.
- Wiremold Open System Inserts.

RC7CTCGY
RC7CTCBK
RC7CTCAL
RC7CTCBS
RC7CTCVY
RC7CTCAB



Finish Flange and Slide Holder Assembly – Prewired 20A duplex can be wired as standard duplex or isolated ground. Flange available in painted gray (GY), black (BK), ivory (VY), brass flange and brass colored cover (AB), or brushed metal finishes in aluminum (AL) and brass (BS). Slide covers match the painted flange colors: gray, black, and ivory. Aluminum and brass flanges shipped with black slide cover. Brass flange also available with nonmetallic brass colored slide holder. Wiremold open system unloaded inserts to accept two discrete keystone connectors from most manufacturers are provided. Other 2A Pass & Seymour Network Wiring inserts can be ordered separately.

ORT P&S OPEN

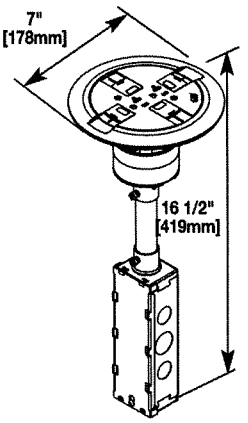
- Includes two Cat 6 TechChoice™ discrete keystone connectors.
- Wiremold Open System Inserts.

Catalog No./Item	Description/Specifications

Catalog Number Explanation
RC7ATJTCAL

RC7	A	TJ	TC	AL
Identifies Poke-Thru Series	Identifies Assembled Unit (A) or Cover (C)	Designates Unit Includes Ortronics Workstation Connectivity Bezels	Identifies that Unit is Approved for Tile and Carpet Floors	Identifies Color of Finish Flange

RC7ATJTCGY
RC7ATJTCBK
RC7ATJTCAL
RC7ATJTCBS

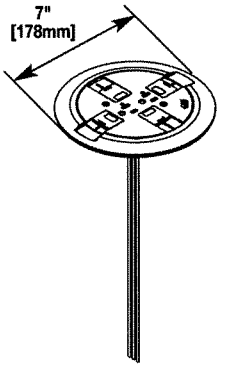


Assembled Unit – Prewired 20A duplex receptacle can be wired as standard duplex or isolated ground. Flange available in painted gray (GY), black (BK), or brushed metal finishes in aluminum (AL) and brass (BS). Slide covers match the painted flange colors:, gray and black. Aluminum and brass flanges shipped with black slide cover.

ORT P&S OPEN

- Unit also includes Ortronics TracJack mounting bezels, two blank TracJack inserts for unused communication openings.

RC7CTJTCGY
RC7CTJTCBK
RC7CTJTCAL
RC7CTJTCBS



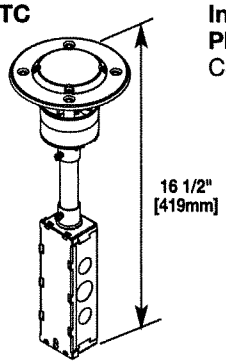
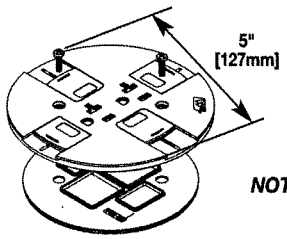
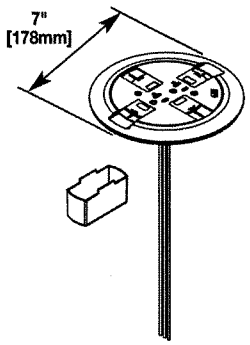
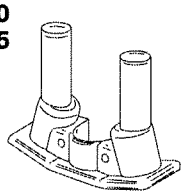
Finish Flange and Slide Holder Assembly – Prewired 20A duplex receptacle can be wired as standard duplex or isolated ground. Flange available in painted gray (GY), black (BK), or brushed metal finishes in aluminum (AL) and brass (BS). Slide covers match the painted flange colors, gray and black. Aluminum and brass flanges shipped with black slide cover.

ORT P&S OPEN

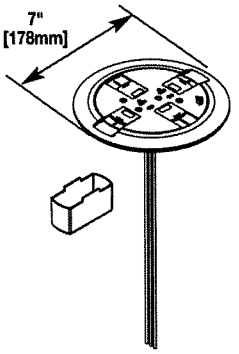
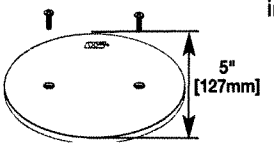
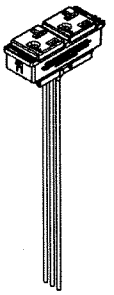
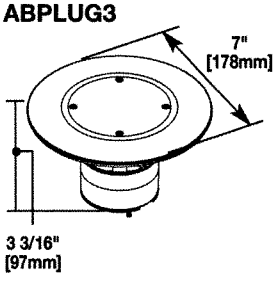
- Unit also includes Ortronics TracJack mounting bezels, two blank TracJack inserts for unused communication openings.

NOTE: *Assembled with scrub water gasket. For use on tile or carpet floors.*
See page 18 for specifications.

RC7 Series Ordering Information (Continued)

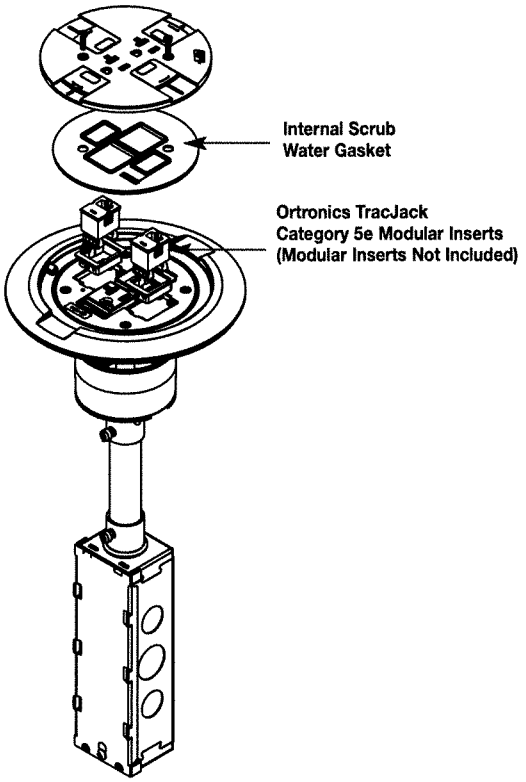
Catalog No./Item	Description/Specifications
RC7STC 	**Insert Assembly with Disposable Plate** – Use with RC7C Series Covers to complete installation.
RC7SHTCBK **RC7SHTCGY** **RC7SHTCBS** **RC7SHTCVY** 	**Nonmetallic Slide Holder Assembly** – Available in black (BK), gray (GY), ivory (VY), and nonmetallic brass (BS). ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*
RC7KTJTCBK **RC7KTJTCGY** **RC7KTJTCAL** **RC7KTJTCBS** 	**Retrofit Kit – Used to upgrade existing installations of RC7 Poke-Thru Devices on carpet floors to meet scrub water requirements.** Includes 20A duplex receptacle that can be wired as a standard duplex or isolated ground, and two Ortronics TracJack mounting bezels. Also includes scrub water finish flange and slide holder assembly. Flange available in painted black (BK), gray (GY), and brushed metal finishes in aluminum (AL), and brass (BS). Kit also includes duplex receptacle barrier. Old barrier must be replaced with new. See installation instructions with retrofit kit for complete installation details.
COM50 **COM75** 	**Communication Adapter** – For two 1/2" trade size conduit connections (COM50). For two 3/4" trade size conduit connections (COM75). ***NOTE:*** *No additional capacity with COM75.*

NOTE: *See page 18 for specifications.*

Catalog No./Item	Description/Specifications
RC7KTCGY **RC7KTCBK** **RC7KTCAL** **RC7KTCBS** 	**Retrofit Kit** – Used to upgrade existing installations of RC7 Poke-Thru Devices on carpet floors to meet scrub water requirements. Includes 20A duplex receptacle that can be wired as a standard duplex or isolated ground, and two Category 6 TechChoice™ discrete keystone connectors. Also includes scrub water finish flange and slide holder assembly. Flange available in painted black (BK), gray (GY), and brushed metal finishes in aluminum (AL), and brass (BS). Kit also includes duplex receptacle barrier. Old barrier must be replaced with new. See installation instructions with retrofit kit for complete installation details.
RC7APTCBK **RC7APTCGY** 	**Abandonment Plate** – Abandonment available in black (BK), gray (GY). ***NOTE:*** *To abandon the RC7 Series Poke-Thru Device, the internal gasket,duplex receptacle, and communication modules must not be removed in order to maintain UL Classification. Also the stem must remain in the core-drilled hole.*
RC37REC **RC37REC-25** 	**Replacement Receptacle** – Prewired snap-in 20A receptacle can be wired as standard duplex or isolated ground. Available only in black. See installation instructions with replacement receptacle for complete installation details. The RC37REC-25 is available with 25 foot leads and can be wired as standard duplex or isolated ground. ***NOTE:*** *The 20A duplex receptacle supplied with the new scrub water version RC7 Poke-Thru Device is proprietary and can only be replaced with the RC37REC or RC37REC-25.*
ABPLUG3 	**Abandonment Plug Assembly** – Complete plug assembly for abandoning an open 3" [76mm] cored-hole. Assembly includes intumescent fire-stop material to maintain the fire-classification of the floor, integral retainer ring to prevent the unit from pulling up through the floor, and a black die-cast aluminum cover.

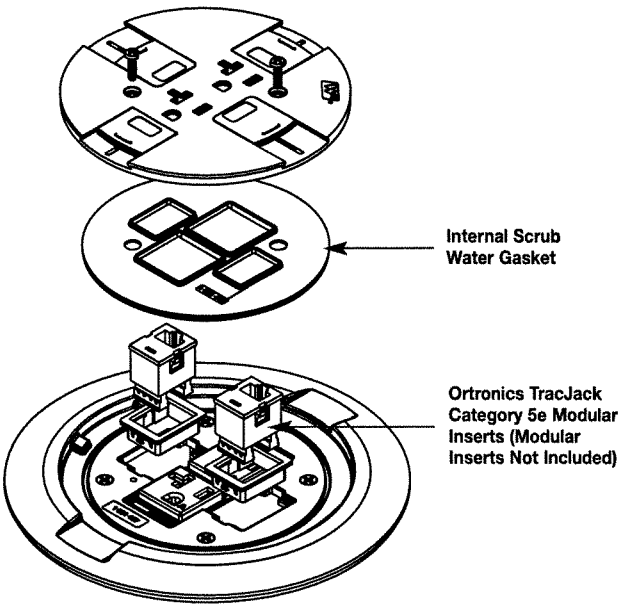
RC7 Series Poke-Thru Exploded Views

Ortronics



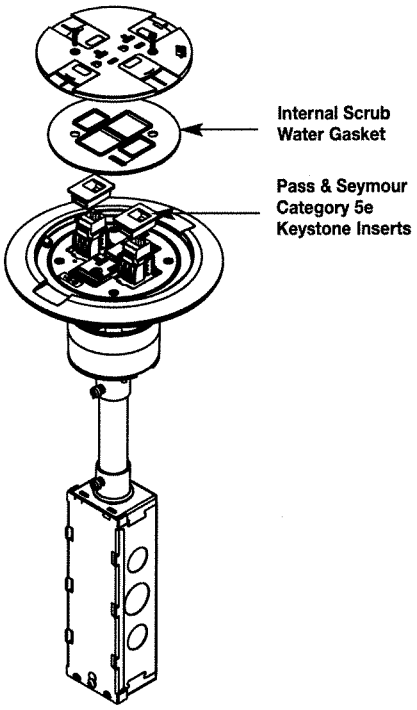
RC7A Assembled Unit shown with two Ortronics TracJack Category 5e modular inserts. (Modular inserts not included.)

Ortronics



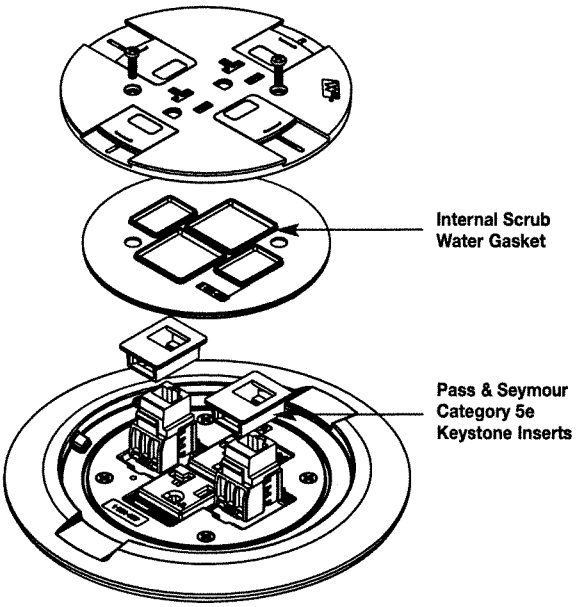
RC7C Cover Assembly shown with Ortronics TracJack bezel and two TracJack Category 5e modular inserts. (Modular inserts not included.)

Pass & Seymour



RC7A Assembled Unit shown with two Pass & Seymour Category 5e keystone inserts.

Pass & Seymour



RC7C Cover Assembly comes with Pass & Seymour keystone open system inserts.

RC9 Series Ordering Information

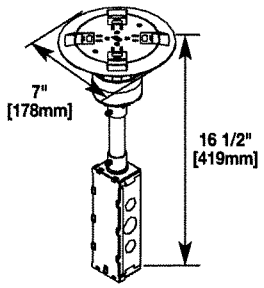
Catalog No./Item	Description/Specifications

Catalog Number Explanation
RC9A15TCGY

RC9	A	15	TC	GY
Identifies Poke-Thru Series	Identifies Assembled Unit (A) or Cover (C)	Identifies 15A Quad Power Receptacle	Identifies that Unit is Approved for Tile and Carpet	Identifies Color of Finish flange and Cover

RC9A15TCGY
RC9A15TCBK
RC9A15TCAL
RC9A15TCBS
RC9A15TCAB
RC9A15TCVY

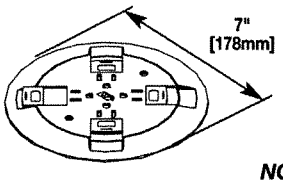
Poke-Thru Assembly – Prewired 15A quad receptacle can be wired as standard quad receptacle or isolated ground. Flange available in painted gray (GY), black (BK), ivory (VY), and brushed metal finishes in aluminum (AL) and brass (BS). Aluminum and brass flanges shipped with black cover. Brass flange also available with brass colored cover assembly (AB). Unit also includes two openings for pass-through capability for one 4-pair Category 5e or Category 6 cable per opening.



NOTE: *Assembled with scrub water gasket. For use on tile or carpet floors.*

RC9CTCGY
RC9CTCBK
RC9CTCAL
RC9CTCBS
RC9CTCAB
RC9CTCVY

Finish Flange & Slide Holder Assembly– Flange available in painted gray (GY), black (BK), ivory (VY), and brushed metal finishes in aluminum (AL) and brass (BS). Aluminum and brass flanges shipped with black cover. Brass flange also available with brass colored cover assembly (AB). Cover assembly also includes two openings for pass-through capability for one 4-pair Category 5e or Category 6 cable per opening.



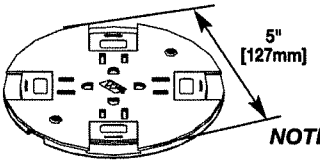
NOTE: *Assembled with scrub water gasket. For use on tile or carpet floors.*

NOTE: *See page 18 for specifications.*

Catalog No./Item	Description/Specifications

RC9SHTCGY
RC9SHTCBK
RC9SHTCBS
RC9SHTCVY

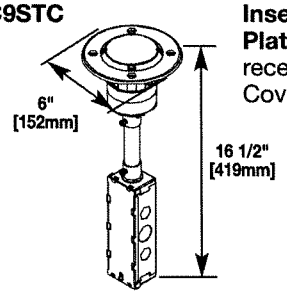
Nonmetallic Slide Holder Assembly – Available in gray (GY), black (BK), ivory (VY), and nonmetallic brass (BS).



NOTE: *Assembled with scrub water gasket. For use on tile or carpet floors.*

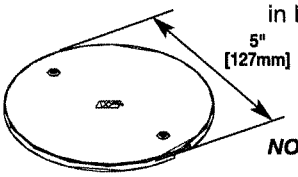
RC9STC

Insert Assembly with Disposable Plate – Includes prewired 15A quad receptacle. use with RC9C Series Covers to complete installation.



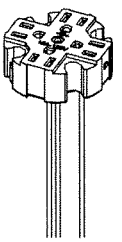
RC9APTCBK

Abandonment Plate – Abandonment available in black (BK).



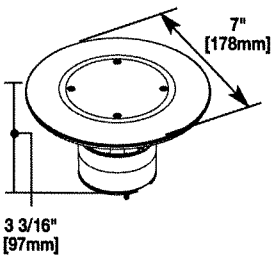
NOTE: *To abandon the RC9 Series Poke-Thru Device, the internal gasket and quad receptacle must not be removed in order to maintain UL Classification. Also, the stem must remain in the core-drilled hole.*

RC9REC



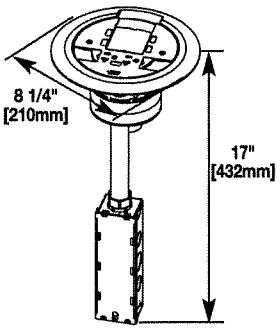
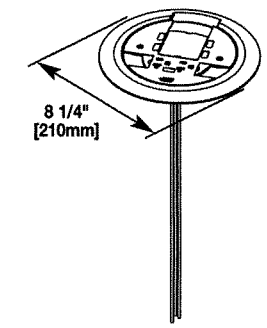
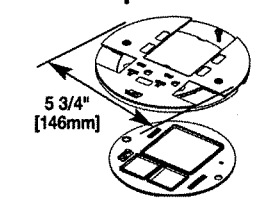
Replacement Receptacle – Prewired 15A quad receptacle can be wired as standard receptacle or isolated ground. Available only in black. See installation instructions with replacement receptacle for complete installation details.

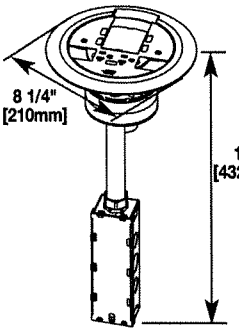
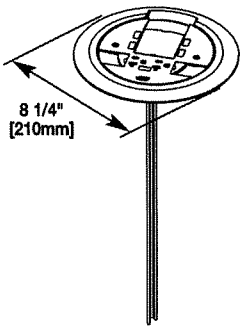
ABPLUG3



Abandonment Plug Assembly – Complete plug assembly for abandoning an open 3" [76mm] cored-hole. Assembly includes intumescent fire-stop material to maintain the fire-classification of the floor, integral retainer ring to prevent the unit from pulling up through the floor, and a black die-cast aluminum cover.

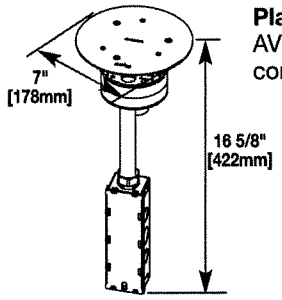
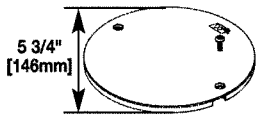
AV3 Audio/Video Flush Style Series Ordering Information

Catalog No./Item	Description/Specifications
AV3ATCGY **AV3ATCBK** **AV3ATCAL** **AV3ATCAA** **AV3ATCBS** **AV3ATCAB** **AV3ATCVY** 	**Assembled Unit** – A/V device includes one prewired 20A duplex receptacle which can be wired as a standard receptacle or isolated ground. Finish flange available in gray (GY), black (BK), ivory (VY), brushed aluminum (AL) and brass finish (BS). Aluminum and brass flanges standard with black cover. Aluminum flange also available with an aluminum colored nonmetallic cover (AA). Brass flange also available with a brass colored nonmetallic cover (AB). • Includes one Extron bezel to accept Extron MAAP mini architectural adapter plates. (Extron devices sold separately, only through authorized Extron dealers). • Includes P&S Activate bezel and two dual Category 5e modular inserts. ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*
AV3CTCGY **AV3CTCBK** **AV3CTCAL** **AV3CTCAA** **AV3CTCBS** **AV3CTCAB** **AV3CTCVY** 	**Finish Flange & Slide Holder Assembly** – Includes one prewired 20A duplex receptacle which can be wired as a standard receptacle or isolated ground. Finish flange available in gray (GY), black (BK), ivory (VY), brushed aluminum (AL) and brass finish (BS). Aluminum and brass flanges standard with black cover. Aluminum flange also available with an aluminum colored nonmetallic cover (AA). Brass flange also available with a brass colored nonmetallic cover (AB). • Includes one Extron bezel to accept Extron MAAP mini architectural adapter plates. (Extron devices sold separately, only through authorized Extron dealers). • Includes P&S Activate bezel and two dual Category 5e modular inserts. ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*
AV3SHTCGY **AV3SHTCBK** **AV3SHTCAL** **AV3SHTCBS** **AV3SHTCVY** 	**Nonmetallic Slide Holder Assembly** – Available in gray (GY), black (BK), ivory (VY), aluminum colored (AL), brass colored (BS). ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*

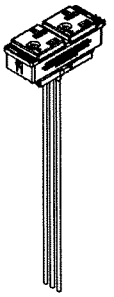
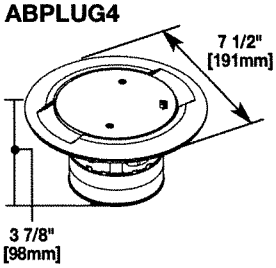
Catalog No./Item	Description/Specifications
AV3ARTTCGY **AV3ARTTCBK** **AV3ARTTCAL** **AV3ARTTCAA** **AV3ARTTCBS** **AV3ARTTCAB** 	**Assembled Unit** – A/V device includes one prewired 20A duplex receptacle which can be wired as a standard receptacle or isolated ground. Finish flange available in gray (GY), black (BK), brushed aluminum (AL) and brass finish (BS). Aluminum and brass flanges standard with black cover. Aluminum flange also available with an aluminum colored nonmetallic cover (AA). Brass flange also available with a brass colored nonmetallic cover (AB). • Includes Ortronics TracJack and Series II mounting bezels and four blank TracJack inserts for closing off unused communication openings. TracJack and Series II modular inserts not included. ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*
AV3CRTTCGY **AV3CRTTCBK** **AV3CRTTCAL** **AV3CRTTCAA** **AV3CRTTCBS** **AV3CRTTCAB** **AV3CRTTCVY** 	**Finish Flange & Slide Holder Assembly** – Includes one prewired 20A duplex receptacle which can be wired as a standard receptacle or isolated ground. Finish flange available in gray (GY), black (BK), ivory (VY), brushed aluminum (AL) and brass finish (BS). Aluminum and brass flanges standard with black cover. Aluminum flange also available with an aluminum colored nonmetallic cover (AA). Brass flange also available with a brass colored nonmetallic cover (AB). • Includes Ortronics TracJack and Series II mounting bezels and four blank TracJack inserts for closing off unused communication openings. TracJack and Series II modular inserts not included. ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*

NOTE: *See page 18 for specifications.*

AV3 Audio/Video Flush Style Series Ordering Information (Continued)

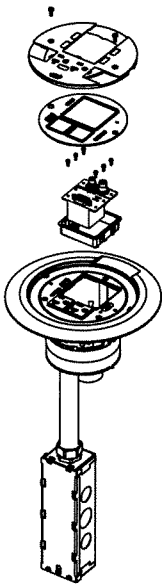
Catalog No./Item	Description/Specifications
AV3STC 	**Insert Assembly with Disposable Plate** – Use with AV3C and AV3CRT Series covers to complete installation.
AV3APTCGY **AV3APTCBK** 	**Abandonment plate** – Abandonment available in black (BK) and gray (GY).

NOTE: *See page 18 for specifications.*

Catalog No./Item	Description/Specifications
RC37REC **RC37REC-25** 	**Replacement Receptacle** – Prewired snap-in 20A receptacle can be wired as standard duplex or isolated ground. Available only in black. See installation instructions with replacement receptacle for complete installation details. The RC37REC-25 is available with 25 foot leads and can be wired as standard duplex or isolated ground. ***NOTE:*** *The 20A duplex receptacle supplied with the scrub water version AV3 Poke-Thru Device is proprietary and can only be replaced with the RC37REC or RC37REC-25.*
ABPLUG4 	**Abandonment Plug Assembly** – Complete plug assembly for abandoning an open 4" [102mm] cored-hole. Assembly includes intumescent fire-stop material to maintain the fire-classification of the floor, integral retainer ring to prevent the unit from pulling up through the floor, and a black die-cast aluminum cover.

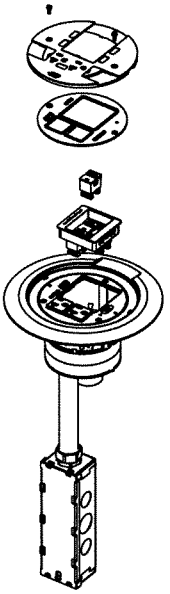
AV3 Audio/Video Series Poke-Thru Exploded Views

Extron MAAP Series mini architectural devices



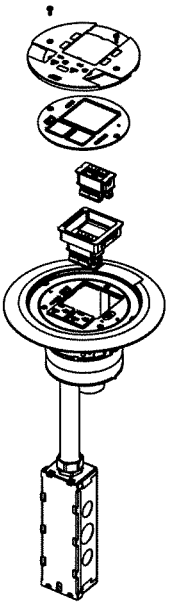
AV3 Assembled Unit shown with Extron bezel and Extron MAAP Series mini architectural adapter plates and devices. Extron MAAP devices sold separately and only through authorized Extron dealers.

Ortronics



AV3ART Assembled Unit shown with TracJack Category 5e modular inserts (devices not included).

Pass & Seymour



AV3 Assembled Unit shown with Pass & Seymour Category 5e modular inserts (included).

RC9AMD Series Ordering Information

Catalog No./Item	Description/Specifications

Catalog Number Explanation
RC9AMDTCGY

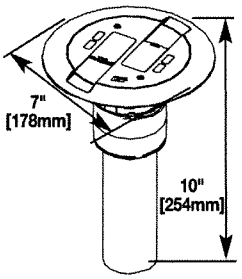
RC9	AMD	TC	GY
Identifies Poke-Thru Series	Identifies Assembled Unit (A) or Cover (C)	Identifies that Unit is Approved for Tile and Carpet	Identifies Color of Finish flange and Cover

RC9AMDTCGY
RC9AMDTCBK
RC9AMDTCAL
RC9AMDTCBS
RC9AMDTCAB
RC9AMDTCVY

ORT
P&S
OPEN

Poke-Thru Assembly – All communication device accepts up to four UTP connectors. Flange available available in gray (GY), black (BK), ivory (VY), and brushed metal finishes in aluminum (AL) and brass (BS). Aluminum and brass flanges shipped with black cover. Brass flange also available with brass colored cover assembly (AB).

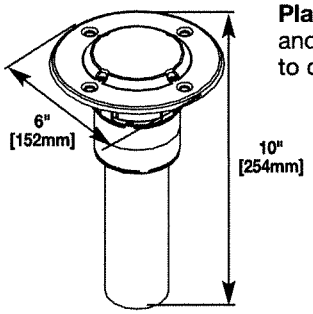
- Includes two Pass & Seymour Category 5e dual modular inserts.
- Wiremold Open System Inserts.



NOTE: *Assembled with scrub water gasket. For use on tile or carpet floors*

RC9AM2STC

Insert Flange with Disposable Plate – Use with RC9C, RC9CMD, and RC9CMDRT Series Covers to complete installation.



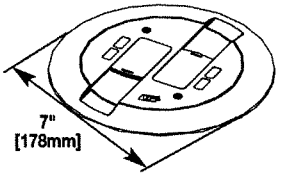
Catalog No./Item	Description/Specifications

RC9CMDTCGY
RC9CMDTCBK
RC9CMDTCAL
RC9CMDTCBS
RC9CMDTCAB
RC9CMDTCVY

ORT
P&S
OPEN

Finish Flange & Slide Holder Assembly– Flange available in painted gray (GY), black (BK), ivory (VY), and brushed metal finishes in aluminum (AL) and brass (BS).Aluminum and brass flanges shipped with black cover. Brass flange also available with brass colored cover assembly (AB).

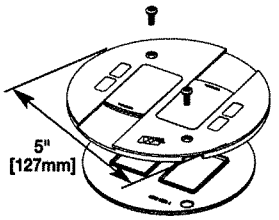
- Includes two Pass & Seymour Category 5e dual modular inserts.
- Wiremold Open System inserts.



NOTE: *Assembled with scrub water gasket. For use on tile or carpet floors*

RC9SHMDTCGY
RC9SHMDTCBK
RC9SHMDTCBS
RC9SHMDTCVY

Nonmetallic Slide Holder Assembly– available in black (BK), gray (GY), ivory (VY), and nonmetallic brass (BS).



NOTE: *See page 18 for specifications.*

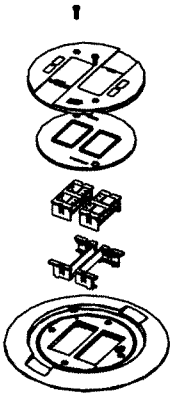
RC9AMD Series Poke-Thru Exploded Views

Pass & Seymour

RC9AMDTC Assembled Unit shown with two Pass & Seymour Category 5e modular inserts.

Pass & Seymour

RC9CMDTC Cover Assembly shown with Pass & Seymour open system inserts.



RC9AMD Series Ordering Information (continued)

Catalog No./Item	Description/Specifications

Catalog Number Explanation
RC9AMDRTTCGY

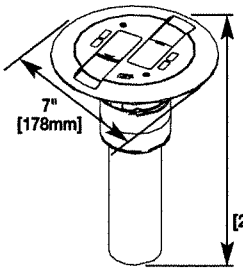
RC9	AMD	RT	TC	GY
Identifies Poke-Thru Series	Identifies Assembled Unit (A) or Cover (C)	Designates Unit Includes Ortronics Workstation Connectivity Bezels	Identifies that Unit is Approved for Tile and Carpet	Identifies Color of Finish flange and Cover

RC9AMDRTTCGY
RC9AMDRTTCBK
RC9AMDRTTCAL
RC9AMDRTTCBS
RC9AMDRTTCAB
RC9AMDRTTCVY

Poke-Thru Assembly – All communication device accepts up to four UTP connectors.Flange available in painted gray (GY), black (BK), ivory (VY), and brushed metal finishes in aluminum (AL) and brass (BS). Aluminum and brass flanges shipped with black cover. Brass flange also available with brass colored cover assembly (AB).

- Includes bezels to accept four Ortronics TracJack inserts, and bezels to accept two dual Ortronics Series II modular inserts.
- TracJack and Series II devices sold separately.

ORT P&S OPEN



NOTE: *Assembled with scrub water gasket. For use on tile or carpet floors*

NOTE: *See page 18 for specifications.*

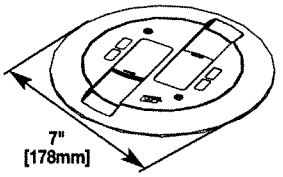
Catalog No./Item	Description/Specifications

RC9CMDRTTCGY
RC9CMDRTTCBK
RC9CMDRTTCAL
RC9CMDRTTCBS
RC9CMDRTTCAB
RC9CMDRTTCVY

Finish Flange & Slide Holder Assembly – Flange available in painted gray (GY), black (BK), ivory (VY), and brushed metal finishes in aluminum (AL) and brass (BS). Aluminum and brass flanges shipped with black cover. Brass flange also available with brass colored cover assembly (AB).

- Includes bezels to accept four Ortronics TracJack inserts, and bezels to accept two dual Ortronics Series II modular inserts.
- TracJack and Series II devices sold separately.

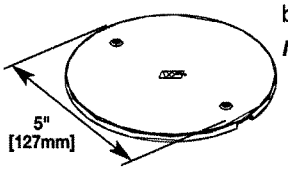
ORT P&S OPEN



NOTE: *Assembled with scrub water gasket. For use on tile or carpet floors*

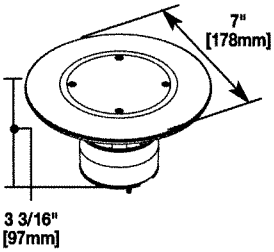
RC9APTCBK

Abandonment Plate – Abandonment available in black (BK).



NOTE: *To abandon the RC9 Series Poke-Thru Device, the internal gasket and quad receptacle must not be removed in order to maintain UL Classification. Also, the stem must remain in the core-drilled hole.*

ABPLUG3

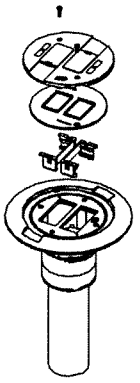


Abandonment Plug Assembly – Complete plug assembly for abandoning an open 3" [76mm] cored-hole. Assembly includes intumescent fire-stop material to maintain the fire-classification of the floor, integral retainer ring to prevent the unit from pulling up through the floor, and a black die-cast aluminum cover.

RC9AMD Series Poke-Thru Exploded Views

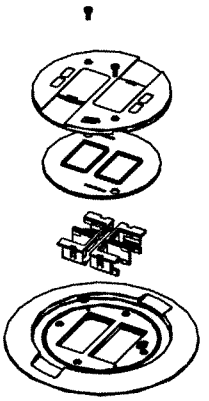
Ortronics

RC9AMDRTTC Assembled Unit shown with two Ortronics Series II Bezels. (Modular inserts not included.)

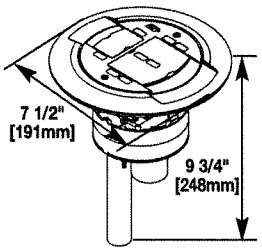
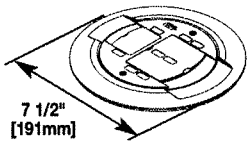
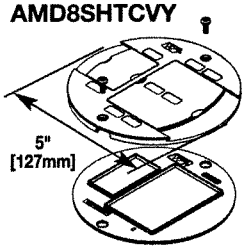
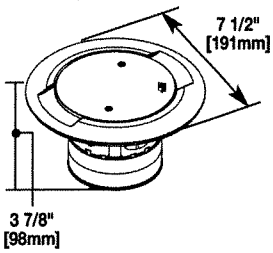


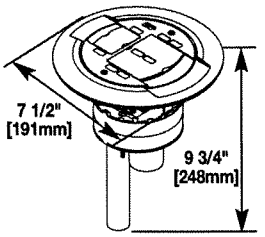
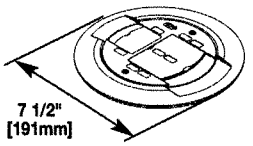
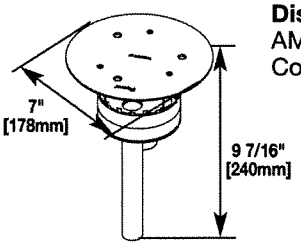
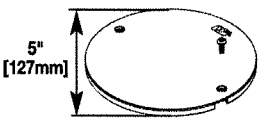
Ortronics

RC9CMDRTTC Cover Assembly shown with two Ortronics open system inserts.



AMD8 All Communication Flush Style Series Ordering Information

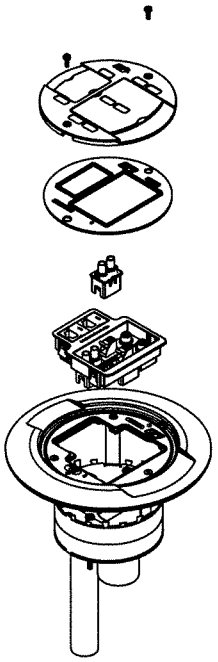
Catalog No./Item	Description/Specifications
AMD8ATCGY **AMD8ATCBK** **AMD8ATCAL** **AMD8ATCAA** **AMD8ATCBS** **AMD8ATCAB** **AMD8ATCVY** 	**Poke-Thru Assembly** – All communication device accepts up to eight UTP, fiber optic, audio, or video connectors. Finish flange available in gray (GY), black (BK), ivory (VY), brushed aluminum (AL) and brass finish (BS). Aluminum and brass flanges standard with black cover. Aluminum flange also available with an aluminum colored nonmetallic cover (AA). Brass flange also available with a brass colored nonmetallic cover (AB). • Includes four Category 5e dual modular inserts. • Wiremold Open System Inserts. ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*
AMD8CTCGY **AMD8CTCBK** **AMD8CTCAL** **AMD8CTCAA** **AMD8CTCBS** **AMD8CTCAB** **AMD8CTCVY** 	**Finish Flange & Slide Holder Assembly** – Finish flange available in gray (GY), black (BK), ivory (VY), brushed aluminum (AL) and brass finish (BS). Aluminum and brass flanges standard with black cover. Aluminum flange also available with an aluminum colored nonmetallic cover (AA). Brass flange also available with a brass colored nonmetallic cover (AB). • Includes four Category 5e dual modular inserts. • Wiremold Open System Inserts. ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*
AMD8SHTCGY **AMD8SHTCBK** **AMD8SHTCAL** **AMD8SHTCBS** **AMD8SHTCVY** 	**Nonmetallic Slide Holder Assembly** – Available in gray (GY), black (BK), ivory (VY), aluminum colored (AL), brass colored (BS). ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*
ABPLUG4 	**Abandonment Plug Assembly** – Complete plug assembly for abandoning an open 4" [102mm] cored-hole. Assembly includes intumescent fire-stop material to maintain the fire-classification of the floor, integral retainer ring to prevent the unit from pulling up through the floor, and a black die-cast aluminum cover.

Catalog No./Item	Description/Specifications
AMD8ARTTCGY **AMD8ARTTCBK** **AMD8ARTTCAL** **AMD8ARTTCAA** **AMD8ARTTCBS** **AMD8ARTTCAB** 	**Poke-Thru Assembly** – All communication device accepts up to eight UTP connectors. Finish flange available in gray (GY), black (BK), brushed aluminum (AL) and brass finish (BS). Aluminum and brass flanges standard with black cover. Aluminum flange also available with an aluminum colored nonmetallic cover (AA). Brass flange also available with a brass colored nonmetallic cover (AB). • Includes bezels to accept eight Ortronics TracJack inserts, and bezels to accept four dual Ortronics Series II modular inserts. • TracJack and Series II devices sold separately. ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*
AMD8CRTTCGY **AMD8CRTTCBK** **AMD8CRTTCAL** **AMD8CRTTCAA** **AMD8CRTTCBS** **AMD8CRTTCVY** 	**Finish Flange & Slide Holder Assembly** – Finish flange available in gray (GY), black (BK), brushed aluminum (AL) and brass finish (BS). Aluminum and brass flanges standard with black cover. Aluminum flange also available with an aluminum colored nonmetallic cover (AA). Brass flange also available with a brass colored nonmetallic cover (AB). • Includes bezels to accept eight Ortronics TracJack inserts, and bezels to accept four dual Ortronics Series II modular inserts. • TracJack and Series II devices sold separately. ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*
AMD8STC 	**Insert Assembly with Disposable Plate** – Use with AMD8C and AMD8CRT Series Covers to complete installation.
AMD8APTCGY **AMD8APTCBK** 	**Abandonment plate** – Abandonment available in black (BK) and gray (GY).

NOTE: *See page 18 for specifications.*

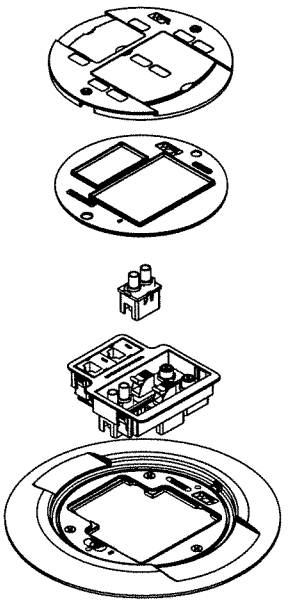
AMD8 All Communication Series Poke-Thru Exploded Views

Ortronics



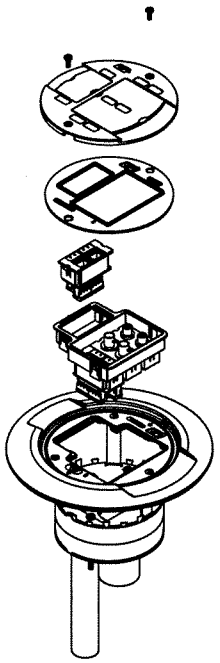
AMD8 Assembled Unit shown with Ortronics TracJack Category 5e modular inserts (devices not included).

Ortronics



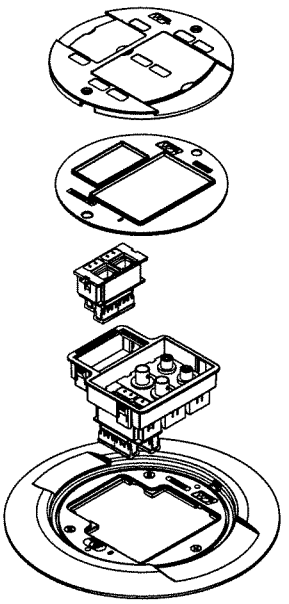
AMD8C Cover Assembly shown with Ortronics TracJack bezels and TracJack Category 5e modular inserts. Ortronics Series II bezels also included. TracJack and Series II modular inserts must be purchased separately.

Pass & Seymour



AMD8 Assembled Unit shown with Pass & Seymour Category 5e modular inserts.

Pass & Seymour



AMD8C Cover Assembly shown with Pass & Seymour (unloaded) keystone open system inserts. Keystone jacks, as well as other Activate 2A Series multimedia inserts must be ordered separately. The AMD8C also includes Category 5e Activate modular inserts.

RC3 Series Ordering Information

Catalog No./Item	Description/Specifications

Catalog Number Explanation
RC3ATCAL

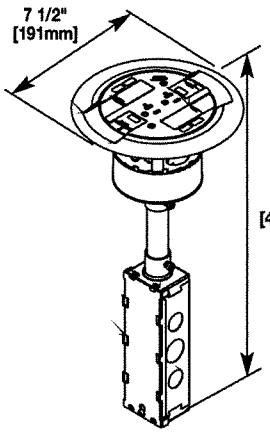
RC3	A	TC	AL
Identifies Poke-Thru Series	Identifies Assembled Unit (A) or Cover (C)	Identifies that Unit is Approved for Tile and Carpet Floors	Identifies Color of Finish Flange

RC3ATCGY
RC3ATCBK
RC3ATCAL
RC3ATCBS
RC3ATCVY
RC3ATCAB

ORT
P&S
OPEN

Assembled Unit – Prewired 20A duplex receptacle can be wired as standard duplex or isolated ground. Flange available in painted gray (GY), black (BK), ivory (VY), or brushed metal finishes in aluminum (AL) and brass (BS). Slide covers match the painted flange colors, gray, black, ivory. Aluminum and brass flanges shipped with black slide cover. Brass flange also available with nonmetallic brass colored slide holder (AB). Wiremold open system unloaded inserts to accept four discrete keystone connectors from most manufacturers are provided. Other 2A Pass & Seymour Network Wiring inserts for fiber optic, coaxial, audio, and video applications can be ordered separately.

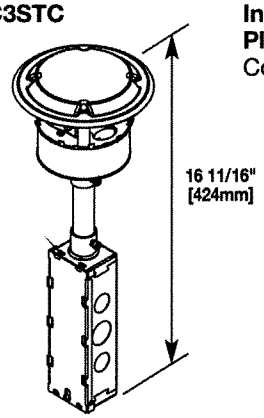
- Unit also includes two Wiremold dual Category 5e modular inserts.
- Wiremold Open System Inserts.



NOTE: *Assembled with scrub water gasket. For use on tile or carpet floors.*

RC3STC

Insert Assembly with Disposable Plate – Use with RC3C Series Covers to complete installation.



Catalog No./Item	Description/Specifications

Catalog Number Explanation
RC3ARTTCAL

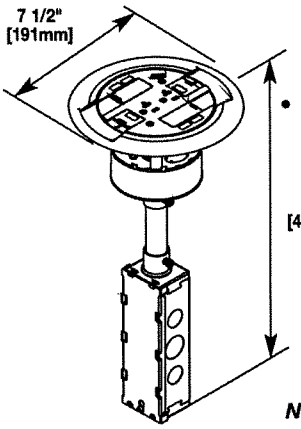
RC3	A	RT	TC	AL
Identifies Poke-Thru Series	Identifies Assembled Unit (A) or Cover (C)	Designates Unit Includes Ortronics Workstation Connectivity Bezels	Identifies that Unit is Approved for Tile and Carpet Floors	Identifies Color of Finish Flange

RC3ARTTCGY
RC3ARTTCBK
RC3ARTTCAL
RC3ARTTCBS

ORT
P&S
OPEN

Assembled Unit – Prewired 20A duplex receptacle can be wired as standard duplex or isolated ground. Flange available in painted gray (GY), black (BK), or brushed metal finishes in aluminum (AL) and brass (BS). Slide covers match the painted flange colors: gray and black. Aluminum and brass flanges shipped with black slide cover.

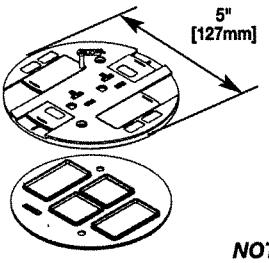
- Unit also includes Ortronics TracJack mounting bezels, four blank TracJack inserts for closing off unused communication openings, and Series II bezels.
- TracJack and Series II modular inserts not included.



NOTE: *Assembled with scrub water gasket. For use on tile or carpet floors.*

RC3SHTCBK
RC3SHTCGY
RC3SHTCBS
RC3SHTCVY

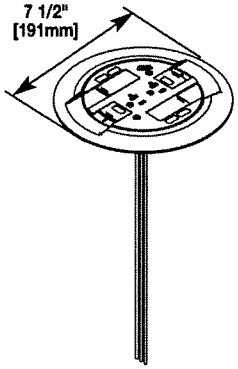
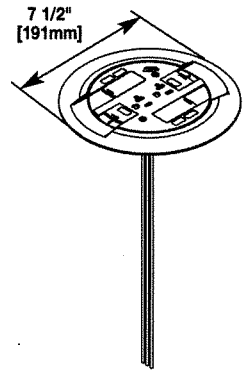
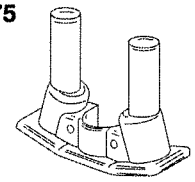
Nonmetallic Slide Holder Assembly – Available in black (BK), gray (GY), ivory (VY), and nonmetallic brass (BS).

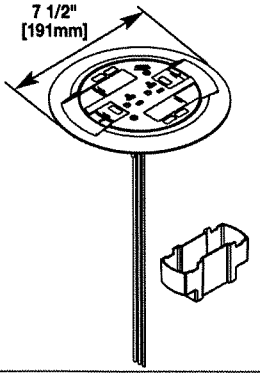
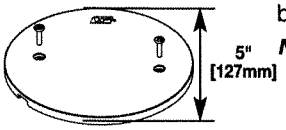
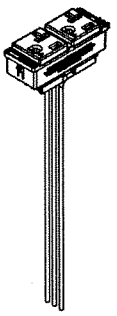
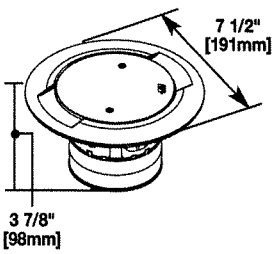


NOTE: *Assembled with scrub water gasket. For use on tile or carpet floors.*

NOTE: *See page 18 for specifications.*

RC3 Series Ordering Information (Continued)

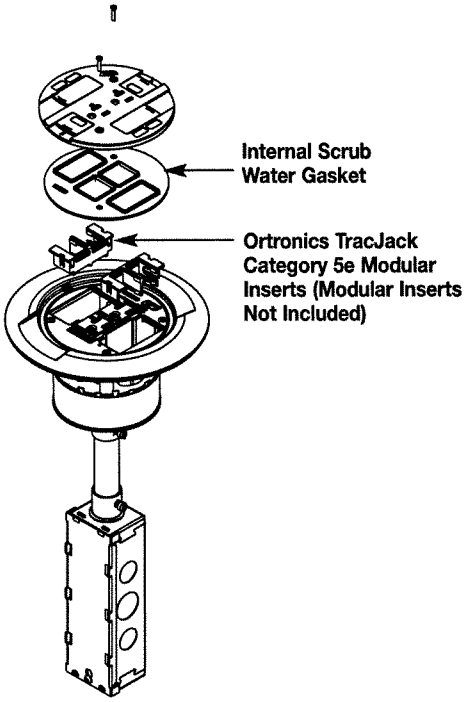
Catalog No./Item	Description/Specifications
RC3CTCGY **RC3CTCBK** **RC3CTCAL** **RC3CTCBS** **RC3CTCAB** **RC3CTCVY** 	**Finish Flange and Slide Holder Assembly** – Prewired 20A duplex receptacle can be wired as standard duplex or isolated ground. Flange available in painted gray (GY), black (BK), ivory (VY) or brushed metal finished in aluminum (AL), and brass (BS). Aluminum and brass flanges shipped with black slide cover. Brass flange also available with nonmetallic brass colored slide holder. Wiremold Open System unloaded inserts to accept four discrete keystone connectors from most manufacturers are provided. Other 2A Pass & Seymour Network Wiring inserts for fiber optic, coaxial, audio, and video applications can be ordered separately. • Unit also includes two Wiremold dual Cat. 5e modular inserts. • Wiremold Open System Inserts. ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*
RC3CRTTCGY **RC3CRTTCBK** **RC3CRTTCAL** **RC3CRTTCBS** 	**Finish Flange and Slide Holder Assembly** – Prewired 20A duplex receptacle can be wired as standard duplex or isolated ground. Flange available in painted gray (GY), black (BK), or brushed metal finishes in aluminum (AL) and brass (BS). Slide covers match the painted flange colors: gray and black. Aluminum and brass flanges shipped with black slide cover. • Unit includes Ortronics TracJack mounting bezels, four blank TracJack inserts for closing off unused communication openings, and Series II bezels. • TracJack and Series II modular inserts not included. ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*
COM50 **COM75** 	**Communication Adapter** – For two 1/2" trade size conduit connections (COM50). For two 3/4" trade size conduit connections (COM75). ***NOTE:*** *No additional capacity with COM75.*

Catalog No./Item	Description/Specifications
RC3KTCGY **RC3KTCBK** **RC3KTCAL** **RC3KTCBS** **RC3KTCVY** 	**Retrofit Kit – Used to upgrade existing installations of RC3 Poke-Thru Devices on carpet floors to meet scrub water requirements.** Includes 20A duplex receptacle that can be wired as a standard duplex or isolated ground. Also includes scrub water finish flange and slide holder assembly. Flange available in painted black (BK), gray (GY), ivory (VY), and brushed metal finishes in aluminum (AL), and brass (BS). Kit also includes duplex receptacle barrier. Old barrier must be replaced with new. See installation instructions with retrofit kit for complete installation details.
RC3APTCBK **RC3APTCGY** 	**Abandonment Plate** – Abandonment available in black (BK), gray (GY). ***NOTE:*** *To abandon the RC3 Series Poke-Thru Device, the internal gasket,duplex receptacle, and communication modules must not be removed in order to maintain UL Classification. Also the stem must remain in the core-drilled hole.*
RC37REC **RC37REC-25** 	**Replacement Receptacle** – Prewired snap-in 20A receptacle can be wired as standard duplex or isolated ground. Available only in black. See installation instructions with replacement receptacle for complete installation details. The RC37REC-25 is available with 25 foot leads and can be wired as standard duplex or isolated ground. ***NOTE:*** *The 20A duplex receptacle supplied with the scrub water version RC3 Poke-Thru Device is proprietary and can only be replaced with the RC37REC or RC37REC-25.*
ABPLUG4 	**Abandonment Plug Assembly** – Complete plug assembly for abandoning an open 4" [102mm] cored-hole. Assembly includes intumescent fire-stop material to maintain the fire-classification of the floor, integral retainer ring to prevent the unit from pulling up through the floor, and a black die-cast aluminum cover.

NOTE: *See page 18 for specifications.*

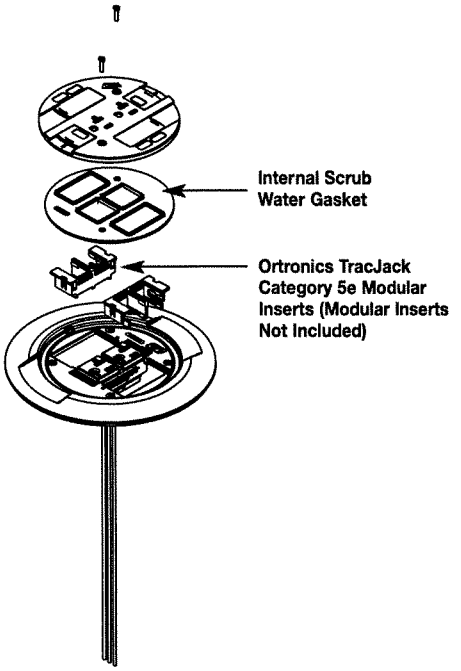
RC3 Series Poke-Thru Exploded Views

Ortronics



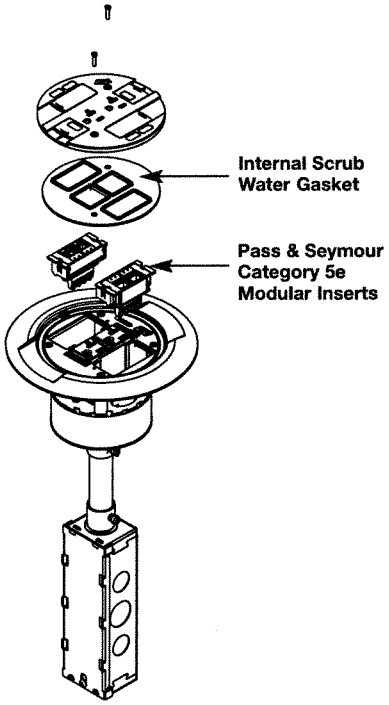
RC3 Assembled Unit shown with two Ortronics TracJack Category 5e modular inserts (not included).

Ortronics



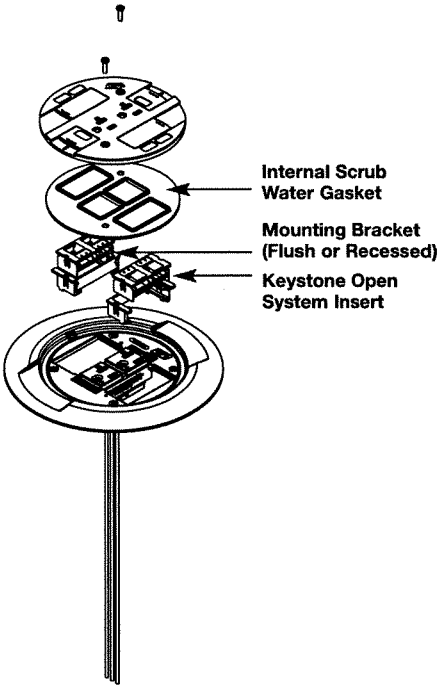
RC3C Cover Assembly shown with Ortronics TracJack bezels and two TracJack Category 5e modular inserts. Ortronics Series II bezels also included. TracJack and Series II modular inserts must be purchased separately.

Pass & Seymour



RC3A Assembled Unit shown with two Pass & Seymour Category 5e modular inserts.

Pass Seymour



RC3C Cover Assembly shown with Pass & Seymour (unloaded) keystone open system inserts. Keystone jacks, as well as other Activate 2A Series multimedia inserts must be ordered separately. The RC3C also includes two Category 5e Activate inserts.

NOTE: *See page 18 for specifications.*

RC4 Series Ordering Information

Catalog No./Item	Description/Specifications

Catalog Number Explanation
RC4ATCAL

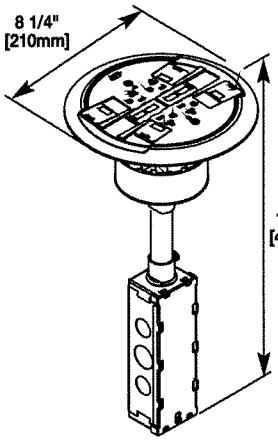
RC4	A	TC	AL
Identifies Poke-Thru Series	Identifies Assembled Unit (A) or Cover (C)	Identifies that Unit is Approved for Tile and Carpet Floors	Identifies Color of Finish Flange

RC4ATCGY
RC4ATCBK
RC4ATCAL
RC4ATCBS
RC4ATCVY
RC4ATCAB

ORT
P&S
OPEN

Assembled Unit – Unit includes four prewired 20A receptacles. Each duplex receptacle is wired as a separate circuit. The duplex can be wired as a standard receptacle or isolated ground. Finish flange available in gray (GY), black (BK), ivory (VY), or brushed metal finishes in aluminum (AL), and brass (BS). Aluminum and brass flanges shipped with black slide cover. Brass flange also available with nonmetallic brass colored slide holder (AB). Wiremold open system unloaded inserts to accept four discrete keystone connectors from most manufacturers are provided. Other 2A Activate™ inserts for fiber, coaxial, audio, and video applications can be ordered separately.

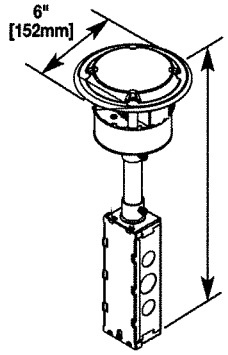
- Unit also includes four Category 6 TechChoice™ connectors.
- Wiremold Open System Inserts.



NOTE: *Assembled with scrub water gasket. For use on tile or carpet floors.*

RC4STC
RC4SRTTC

Insert Assembly with Disposable Plate – Comes complete with four prewired 20A receptacles. Use RC4STC with RC4C Series Covers. Use RC4SRTTC Stem with RC4CRT Series Covers (Ortronics).



Catalog No./Item	Description/Specifications

Catalog Number Explanation
RC4ARTTCAL

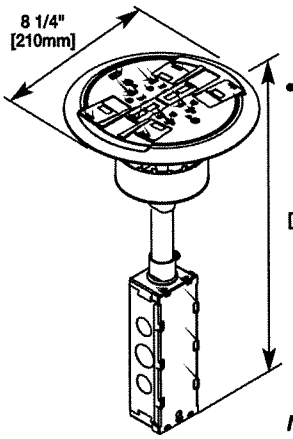
RC4	A	RT	TC	AL
Identifies Poke-Thru Series	Identifies Assembled Unit (A) or Cover (C)	Designates Unit Includes Ortronics Workstation Connectivity Bezels	Identifies that Unit is Approved for Tile and Carpet Floors	Identifies Color of Finish Flange

RC4ARTTCGY
RC4ARTTCBK
RC4ARTTCAL
RC4ARTTCBS

ORT
P&S
OPEN

Assembled Unit – Unit includes four prewired 20A receptacles. Each duplex receptacle can be wired as standard duplex or isolated ground. Flange available in painted gray (GY), black (BK), or brushed metal finishes in aluminum (AL) and brass (BS). Slide covers match the painted flange colors: gray and black. Aluminum and brass flanges shipped with black slide cover.

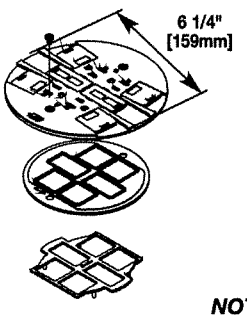
- Unit also includes Ortronics TracJack mounting bezels, four blank TracJack inserts for closing off unused communication openings, and Series II bezels.
- TracJack and Series II modular inserts not included.



NOTE: *Assembled with scrub water gasket. For use on tile or carpet floors.*

RC4SHTCBK
RC4SHTCGY
RC4SHTCBS
RC4SHTCVY

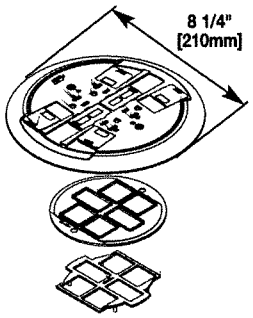
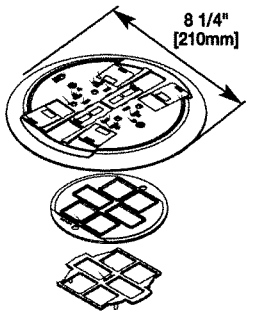
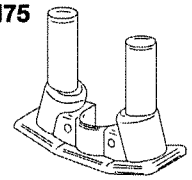
Nonmetallic Slide Holder Assembly – Available in black (BK), gray (GY), ivory (VY), and nonmetallic brass (BS).



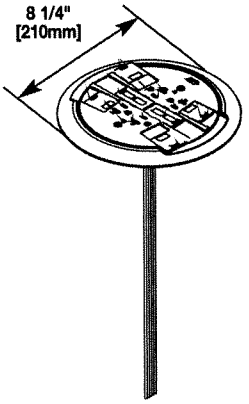
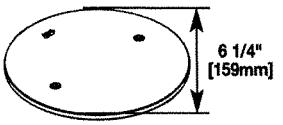
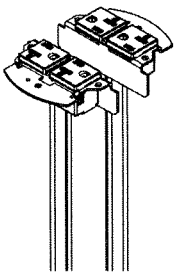
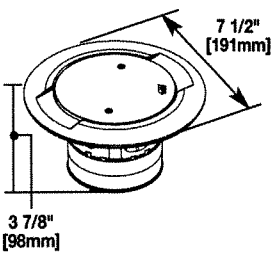
NOTE: *Assembled with scrub water gasket. For use on tile or carpet floors.*

NOTE: *See page 18 for specifications.*

RC4 Series Ordering Information (Continued)

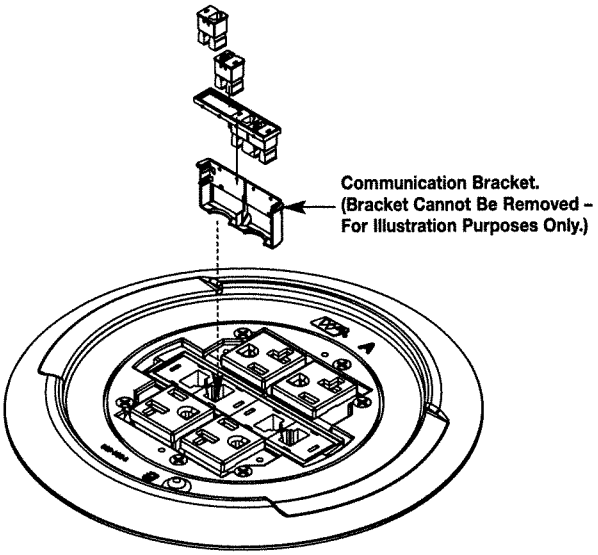
Catalog No./Item	Description/Specifications
RC4CTCGY **RC4CTCBK** **RC4CTCAL** **RC4CTCBS** **RC4CTCAB** **RC4CTCVY** 	**Finish Flange and Slide Holder Assembly** – Flange available in painted gray (GY), black (BK), ivory (VY) or brushed metal finished in aluminum (AL), and brass (BS). Slide covers match the painted flange colors: gray, black, and ivory. Aluminum and brass flanges shipped with black slide cover. Brass flange also available with nonmetallic brass colored slide holder (AB). Wiremold open system unloaded inserts to accept four discrete keystone connectors from most manufacturers are provided. Other 2A Pass & Seymour Network Wiring inserts for fiber optic, coaxial, audio, and video applications can be ordered separately. • Unit also includes four Category 6 TechChoice™ inserts. • Wiremold Open System Inserts. ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*
RC4CRTTCGY **RC4CRTTCBK** **RC4CRTTCAL** **RC4CRTTCBS** 	**Finish Flange and Slide Holder Assembly** – Flange available in painted gray (GY), black (BK), or brushed metal finishes in aluminum (AL) and brass (BS). Slide covers match the painted flange colors: gray and black. Aluminum and brass flanges shipped with black slide cover. • Unit includes Ortronics TracJack mounting bezels, four blank TracJack inserts for closing off unused communication openings, and Series II bezels. • TracJack and Series II modular inserts not included. ***NOTE:*** *Assembled with scrub water gasket. For use on tile or carpet floors.*
COM50 **COM75** 	**Communication Adapter** – For two 1/2" trade size conduit connections (COM50). For two 3/4" trade size conduit connections (COM75). ***NOTE:*** *No additional capacity with COM75.*

NOTE: *See page 18 for specifications.*

Catalog No./Item	Description/Specifications
RC4KTCBK **RC4KTCGY** **RC4KTCAL** **RC4KTCBS** **RC4KTCAB** **RC4KTCVY** 	**Retrofit Kit – Used to upgrade existing installations of RC4 Poke-Thru Devices on carpet floors to meet scrub water requirements.** Includes two 20A duplex receptacles that can be wired as a standard duplex or isolated ground. Also includes scrub water finish flange and slide holder assembly. Flange available in painted black (BK), gray (GY), ivory (VY), and brushed metal finishes in aluminum (AL), and brass (BS). See installation instructions with retrofit kit for complete installation details.
RC4APTCBK **RC4APTCGY** **RC4APTCAB** **RC4APTCVY** 	**Abandonment Plate** – Available in black (BK), gray (GY), painted brass (AB), and ivory (VY). ***NOTE:*** *To abandon the RC4 Series Poke-Thru Device, the internal gasket, duplex receptacle, and communication modules must not be removed in order to maintain UL Classification. Also the stem must remain in the core-drilled hole.*
RC4REC2 **RC4REC2-25** 	**Replacement Receptacle** – Two prewired 20A duplex receptacles can be wired as standard duplex or isolated ground. Available only in black. See installation instructions with replacement receptacle for complete installation details. RC4REC2-25 is available with with 25 foot leads and can be wired as standard duplex or isolated ground. ***NOTE:*** *The 20A duplex receptacle supplied with the scrub water version RC4 Poke-Thru Device is proprietary and can only be replaced with the RC4REC2 or RC4REC2-25.*
ABPLUG4 	**Abandonment Plug Assembly** – Complete plug assembly for abandoning an open 4" [102mm] cored-hole. Assembly includes intumescent fire-stop material to maintain the fire-classification of the floor, integral retainer ring to prevent the unit from pulling up through the floor, and a black die-cast aluminum cover.

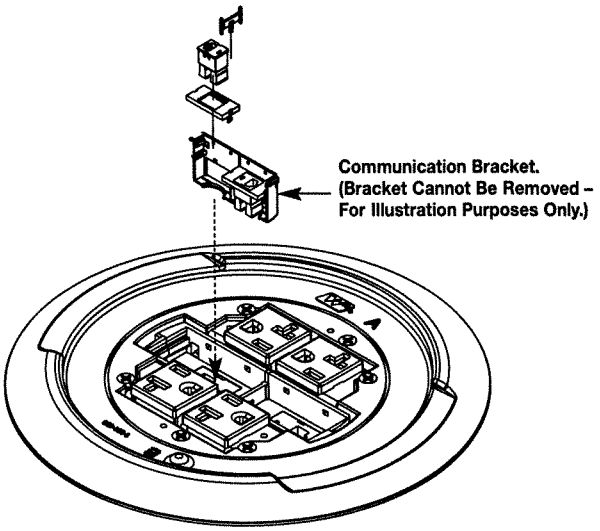
RC4 Series Poke-Thru Exploded Views

Ortronics



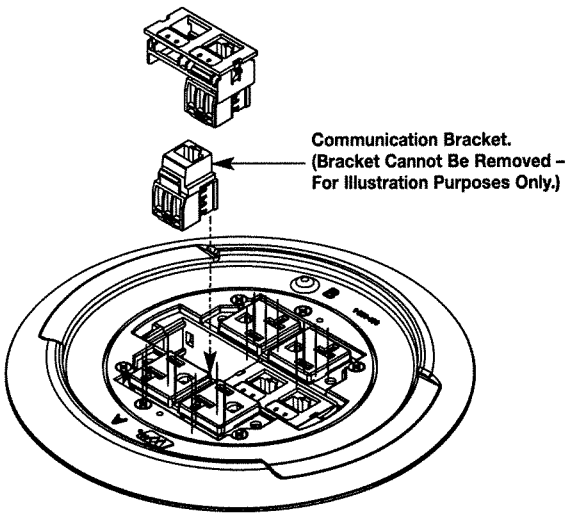
RC4 – Mounting of two Ortronics TracJack Category 5e modular inserts in the flush position. Will accept a total of four TracJack modular inserts in the flush position. (Modular inserts not included.)

Ortronics



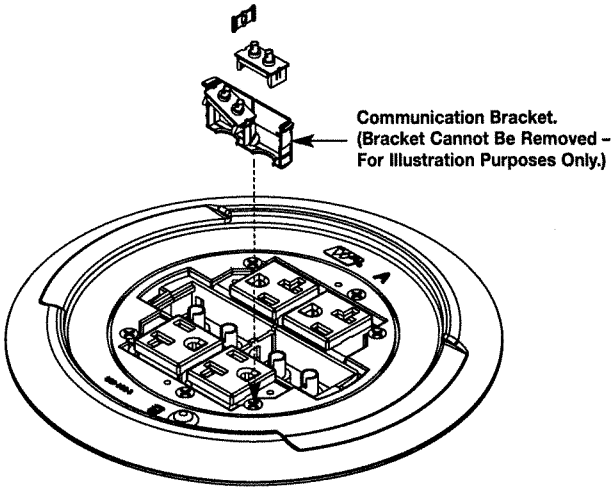
RC4 – Mounting of one Ortronics TracJack Category 5e modular insert in the recessed position. Will accept a total of two TracJack modular inserts in the recessed position. (Modular inserts not included.)

Pass & Seymour



RC4-Mounting of four keystone connectors (included with assemblies and covers) in the flush position.

Pass & Seymour



RC4 – Mounting of two fiber optic inserts (sold separately) in the recessed position.

Flush Poke-Thru Series Specifications

Copper Cross Section:

The copper cross-sectional area determines the amount of wire fill capacity in a poke-thru device. Unlike other wire and cable management systems that utilize wire fill capacity, a poke-thru device is UL tested under fire conditions to determine the maximum amount of copper conductors that will pass through a poke-thru device, while maintaining the fire-rating of the floor assembly. All Walker Flush Style Devices are UL Classified to U.S. and Canadian safety standards (see complete marking on product) to accommodate at a maximum rating as follows:

RC7 SERIES

Maximum Allowable Copper Cross-Sectional Area:
RC7 Power Compartment Only = .01536 sq. in. [9.91mm²]
RC7 Each Communication Compartment Only = .0040 sq. in. [2.58mm²]

NOTE: *The RC7 Series requires a 3" [76mm] cored hole. (American made core bit having an outside diameter of 3 1/16" [78mm].)*

RC9 SERIES

Maximum Allowable Copper Cross-Sectional Area:
RC9 Power Compartment Only = .01536 sq. in. [9.91mm²]
RC9 Each Communication Compartment Only = .0040 sq. in. [2.58mm²]

NOTE: *The RC9 Series requires a 3" [76mm] cored hole. (American made core bit having an outside diameter of 3 1/16" [78mm].)*

AV3 SERIES

Maximum Allowable Copper Cross-Sectional Area:
AV3 Power Compartment Only = .01536 sq. in. [9.91mm²]
AV3 Communication Compartment Only = .01938 sq. in. [12.503mm²]

NOTE: *The AV3 Series requires a 4" [102mm] cored hole. (American made core bit having an outside diameter of 4 1/16" [103mm].)*

RC9AMD SERIES

Maximum Allowable Copper Cross-Sectional Area:
RC9AMD Communication Compartment = .01600 sq. in. [10.324mm²]

NOTE: *The RC9AMD Series requires a 3" [76mm] cored hole. (American made core bit having an outside diameter of 3 1/16" [78mm].)*

AMD8 SERIES

Maximum Allowable Copper Cross-Sectional Area:
AMD8 Communication Compartment Only = .03474 sq. in. [22.412mm²]

NOTE: *The AMD8 Series requires a 4" [102mm] cored hole. (American made core bit having an outside diameter of 4 1/16" [103mm].)*

RC3 SERIES

Maximum Allowable Copper Cross-Sectional Area:
RC3 Power Compartment Only = .01536 sq. in. [9.91mm²]
RC3 Each Communication Compartment Only = .008 sq. in. [5.16mm²]

NOTE: *The RC3 Series requires a 4" [102mm] cored hole. (American made core bit having an outside diameter of 4 1/16" [103mm].)*

RC4 SERIES

Maximum Allowable Copper Cross-Sectional Area:
RC4 Power Compartment Only = .03072 sq. in. [19.82mm²]
RC4 Each Communication Compartment Only = .008 sq. in. [5.16mm²]

NOTE: *The RC4 Series requires a 4" [102mm] cored hole. (American made core bit having an outside diameter of 4 1/16" [103mm].)*

IMPORTANT!

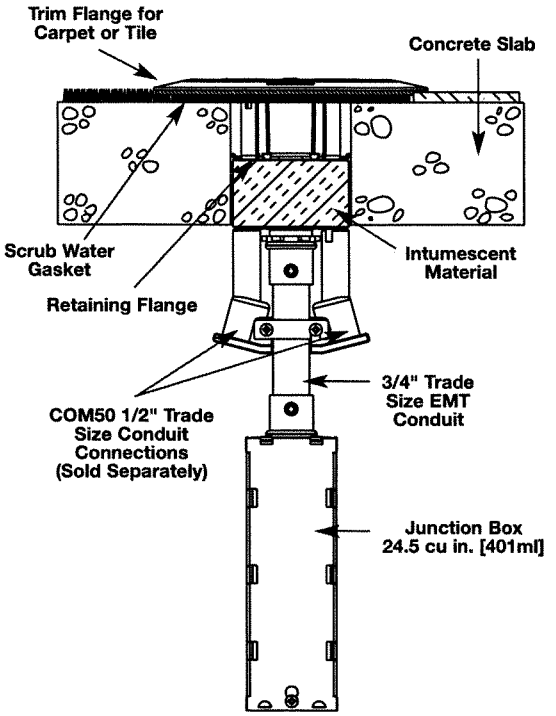
The above maximum copper cross sectional area values are for each individual power and communication compartment. DO NOT add values together for any one compartment.

CAUTION! *Core bits vary in size from manufacturer to manufacturer:*

- *Use a 3" [76mm] American made core bit having an outside diameter of 3 1/16" [78mm]. Minimum hole diameter: 3 1/16" [78mm].*
- *Use a 4" [102mm] American made core bit having an outside diameter of 4 1/16" [103mm]. Minimum hole diameter: 4 1/16" [103mm].*

Copper Cross Sectional Area of Commonly Used Conductors		
Size	**Solid**	
#24	.00032 sq. in.	[.206mm²]
#22	.00050 sq. in.	[.322mm²]
#14	.00323 sq. in.	[2.083mm²]
#12	.00512 sq. in.	[3.303mm²]
#10	.00815 sq. in.	[5.258mm²]
# 8	.01296 sq. in.	[8.361mm²]

NOTE: *Use above values for solid or stranded conductors.*



Concrete Thickness Min/Max:

1-HOUR RATED FLOOR – 2 1/4" [57mm] min over top of deck (or 3" [76mm] thick reinforced concrete slab) to a maximum of 7 1/2" [191mm].

2-HOUR RATED FLOOR – 3 1/4" [83mm] min over top of deck (or 4" [102mm] thick reinforced concrete slab) to a maximum of 7 1/2" [191mm].

Floor Coverings:

The poke-thru device is fire rated for carpet and wood covered concrete floors, tile floor coverings up to 3/4" [19.1mm] maximum thickness, and linoleum floor coverings up to a maximum of 1/8" [3.2mm] thickness. For other floor coverings not listed above, consult factory.

CAUTION: *These devices are suitable for 1, 1 1/2, and 2 hour rated floor assemblies as described in the UL Fire Resistance directory for each service.*

These devices meet all UL scrub water requirements, but are not suitable for wet or damp locations, or other areas subject to saturation with water or other liquids such as commercial kitchens.

Notes

NOTE: The material that is used in Walker Poke-Thru devices is not listed under the directory for Fire Stopping Material because the poke-thru device is UL Classified as "Outlet Boxes and Fittings Classified For Fire Resistance (CEYY)". The pass/fail criteria comes from UL263. The pass criteria is that the poke-thru unit cannot exceed 325° F. above ambient before the concrete slab (or deck) reaches this same temperature. Some poke-thru devices are tested for 2 hours while others are tested for 4 hours. The intumescent material has never been tested as a fire-stopping material as a stand-alone device. This material is designed to work as a unit with the entire poke-thru device.

To Wiremold.com

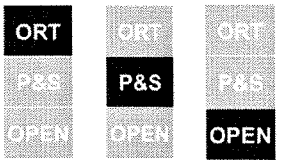
Guide Form Specs
CAD Drawings Available

Datacom Connectivity Options

Now you have a wide range of options for providing datacom connectivity into Wiremold® Cable Management Systems. They are:

- **Ortronics® TracJack® and Series II Modular Connectivity Solutions**
- **Pass & Seymour Activate™ Modular Inserts**
- **Open System Communication Modules**

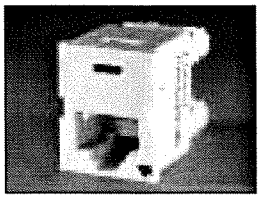
Use these icons to determine connectivity options for each Wiremold System component:



Ortronics® Connectivity

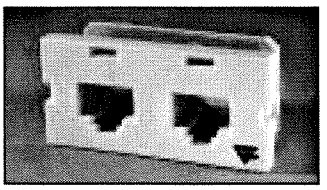
ORT

TracJack® Individual Jack System



- Front-loading, snap-in design supports future moves adds and changes
- Inserts for voice, data, audio, and video
- Available Category 3, 5e, 6, USOC 6-position, and other media
- Choice of 13 colors and color matched to Wiremold Systems
- Universal T568A/B wiring format

Series II Front-Loading, Module System



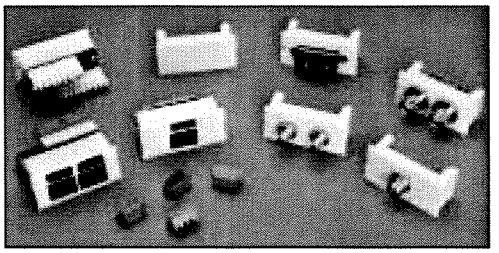
- Module design features easy snap-in front-loading design
- Linear 110 punch down format for easy termination
- Inserts for voice, data, audio, and video
- Available Category 3, 5e, 6, USOC 6-position, and other media
- Color matched to Wiremold Systems

For detailed product selection refer to the Ortronics Catalog or visit www.ortronics.com.

Pass & Seymour Legrand Network Wiring

P&S

Activate™ Series Front-Loading Inserts



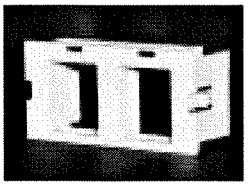
- Modular inserts for voice, data, audio and video applications
- Front-load, snap-in design
- Color and texture matched to Wiremold Systems
- Available Category 3, 5e, 6, as well as 6-position USOC
- Universal T568A/B wiring format

For detailed product selection refer to the Pass & Seymour Network Wiring Catalog or visit www.passandseymour.com.

Open Connectivity Solutions

OPEN

Wiremold Open System Communications Modules



- Accommodate a wide range of manufacturers' communications outlets including keystone jacks, as well as proprietary solutions from Avaya (Lucent) and NORDX
- Modules insert into a wide range of Wiremold Systems
- Pre-punched faceplates accept common communication devices

NOTE: For more information on integrating connectivity into Wiremold Cable Management Systems contact the Wiremold Applications Engineering Team or your local Wiremold Sales Representative.

WIREMOLD

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Wiremold / Legrand
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60 Woodlawn Street • West Hartford, CT 06110
1-800-621-0049 • FAX 860-232-2062 • Outside U.S. 860-233-6251
Canada:
570 Applewood Crescent • Vaughan, Ontario L4K 4B4
1-800-723-5175 • FAX 905-738-9721

ED1215R6 – Updated July 2005 – For latest specs visit www.wiremold.com

P-4 Wiremold – Convention Center Floor Boxes

WIREMOLD

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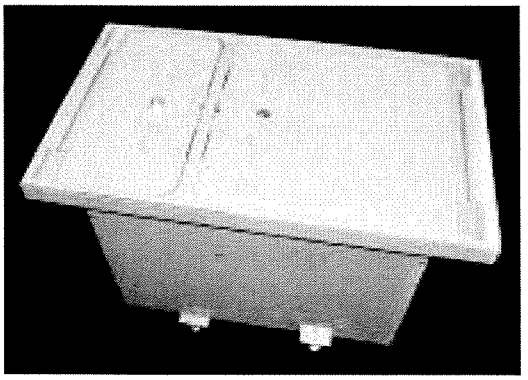
CCFB Series
Convention Center Floor Boxes

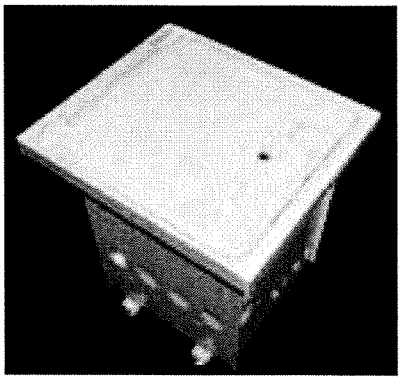
Large Capacity, Multi-Utility Floor Box

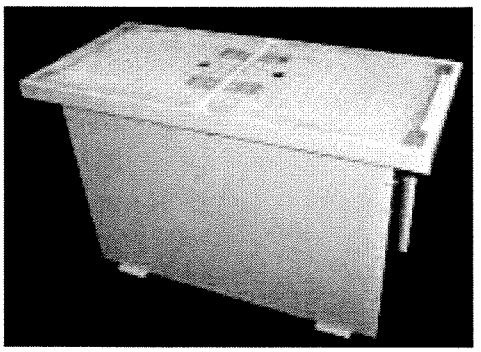
TOP GUARD *Protection from water, dirt, and debris.*

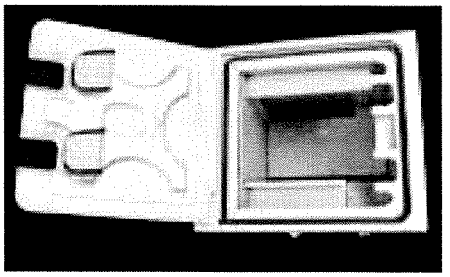
The Wiremold CCFB Series Convention Center Floor Boxes are an excellent solution for providing multi-utility services directly to the show room floor. The versatile design of the CCFB Series can be configured to accommodate virtually any utility requirement including audio/video, communications, power receptacles, plumbing, and compressed air.

Typical applications include convention centers, exhibition halls, hotels, casinos, ballrooms, meeting rooms, arenas, stadiums, auditoriums, performing arts facilities, universities, military and industrial facilities.









CCFB Series Convention Center Floor Boxes are available in a variety of sizes and configurations to meet the communications and power supply requirements of large volume display facilities.

Features & Benefits

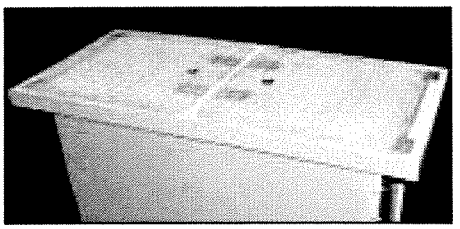
- **TopGuard Protection.** Integral design component that prevents water, dirt, and debris from entering power and communication compartments. Meets and exceeds all UL scrub water exclusion requirements for tile and carpet floors.
- **UL Listed to U.S. and Canadian Safety Standards as a complete floor box assembly.** The only convention style floor box UL Listed as a complete assembly.
- **Designed to the customer's specifications.** Interior layouts and compartments are specifically designed to meet the needs of the user.
- **Various box sizes and cover types available.** Standard boxes are available in 15" x 15" x 25" depth with large single cover; 15" x 25" x 25" deep with dual cover, and 15" x 34" x 25" deep with dual cover. Box depths can be varied to meet the needs of the application. Additional box sizes are available.
- **Light weight cover meets heavy load requirements.** Cast aluminum cover provides strength and ease of use. Designed to meet 32,000 lb. load on 1" x 16" footprint with a safety factor of two (64,000 lbs).
- **Power and low voltage devices supplied.** 200 amp, 100 amp, 60 amp, 30 amp, and 20 amp devices available complete with weatherproof covers, if required, for added safety. Connectivity products can also be factory installed.
- **Factory prewired.** Can be factory wired with power distribution blocks, circuit breakers, and power devices so that power is split from a single supply circuit.
- **Plumbing.** Drains are supplied in required size. Water and compressed air assemblies also available.
- **Corrosion resistant.** Box bases are constructed of 14 gauge G90 galvanized steel, painted with fusion bonded "rebar" Epoxy Powder Coat. Stainless steel boxes also available.
- **Simplified installation.** Box is supplied with punched conduit entry locations (holes or knockouts) and brackets as needed for mounting the box. If ordered prewired, the only required electrical connections are at the main panel.
- **Safety.** Covers rotate 180 degrees to rest on adjacent floor, eliminating accidental closure.

For additional product and ordering information, contact:
WIREMOLD CANADA, INC.
570 Applewood Crescent, Vaughan, Ontario, Canada L4K 4B4
TOLL-FREE 1-800-723-5175

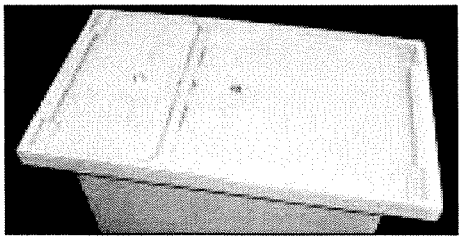
CCFB Series Basic Cover Assembly

CCFB Series Convention Center Floor Box Covers are available with either Non-Slip (NS) flush surface or 1/4" [6.35mm] Carpet Recess (CR).

Non-Slip Flush Surface (NS)

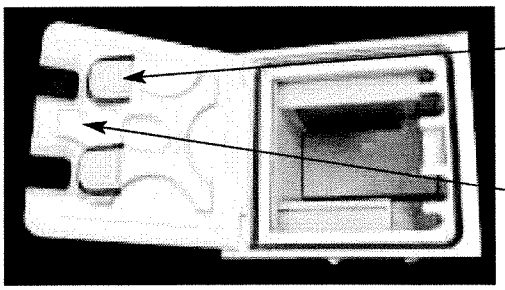


1/4" [6.35mm] Carpet Recess (CR)



CCFB Series Convention Center Floor Box Covers are available either Hinged (H), with a 180° opening hinge assembly, or Unhinged (N).

Hinged Assembly (H)

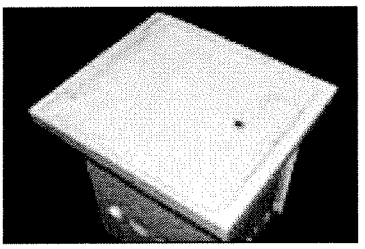


CCFB Series Convention Center Floor Boxes are available in five different cover assembly configurations to meet the specific needs of each installation.

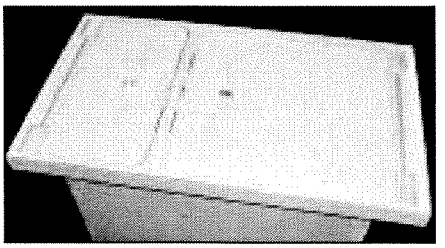
Cover Assemblies available:

- **One Small Cover (C1)**
- **One Large Cover (C2)**
- **Two Small Covers (C3)**
- **One Small Cover & One Large Cover (C4)**
- **Two Large Covers (C5)**

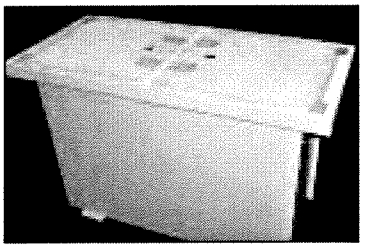
One Small Cover (C1)



One Small & One Large Cover (C4)



Two Large Covers (C5)



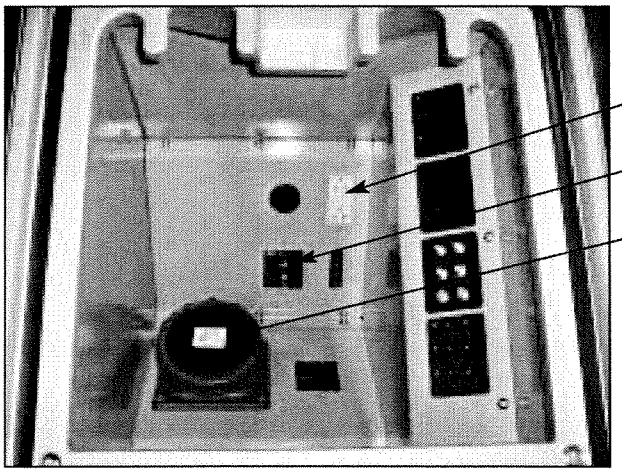
CCFB Series Multi-Utility Box Assembly

Basic box assembly (CCFB) consists of base, four sides, sheet metal frame for mounting the cast cover/frame assembly, means for leveling box, and openings for utilities. Standard boxes available 15" x 15" x 25" deep with large single cover; 15" x 25" x 25" deep with dual cover, and 15" x 34" x 25" deep with dual cover. Box depths can be varied to meet the needs of the application. Additional box sizes are also available.

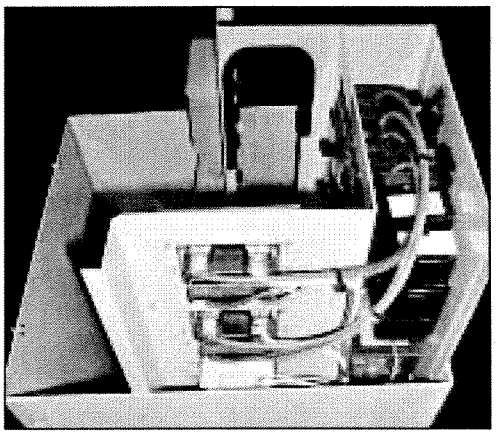
Box finish assembly available:

- Unpainted G90 galvanized steel finish (UGS)
- Unpainted stainless steel (USS)
- Painted G90 galvanized steel (PGS)
- Painted stainless steel (PSS)

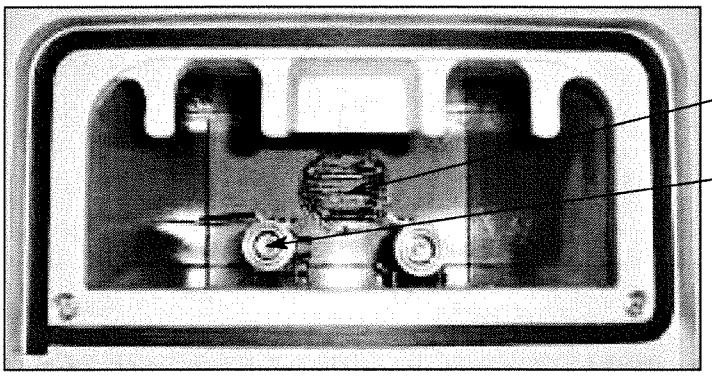
Communication compartment is available for field-installation of communication devices (D). Pull-through provisions are available for non-permanent utilities (P).



Prewired Electrical Sub-Assembly



Water services (W) available. If water services are required, a main divider is automatically added to separate the electrical/communications compartments from the water compartment. Compressed air services are also available.



Notes

For additional product and ordering information, contact:
WIREMOLD CANADA, INC.
570 Applewood Crescent, Vaughan, Ontario, Canada L4K 4B4
TOLL-FREE 1-800-723-5175

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ED1328R2 – Updated April 2005 – For latest specs visit www.wiremold.com

Q. Electrical Calculations

Q-1 Photometric Calculations

LitePro 2.017 Point-By-Point Results

PROJECT: Jackson Barracks Master Plan/ GROUP: IMC Site Plan AREA: Area C circular GRID: New Grid
PREPARED BY: J. Sarradet
VALUES ARE FC, SCALE: 1 IN= 50.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0

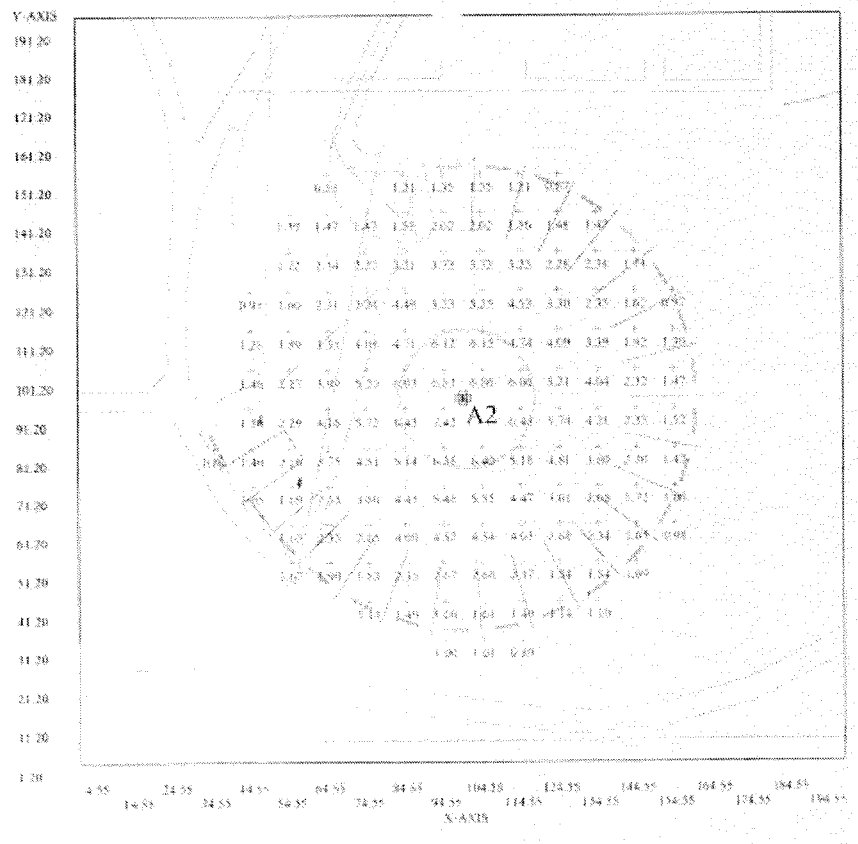
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	0.80	7.47	2.99	3.73	9.34

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
A2	1	--------	4-F3, , (4) F8 <EH19-Q-250MH>, LLF= 0.80;



LitePro 2.017 Point-By-Point Results

PROJECT: Jackson Barracks Master Plan/ GROUP: IMC Site Plan AREA: Area D POV GRID: New Grid
PREPARED BY: J. Sarradet
VALUES ARE FC, SCALE: 1 IN= 80.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0

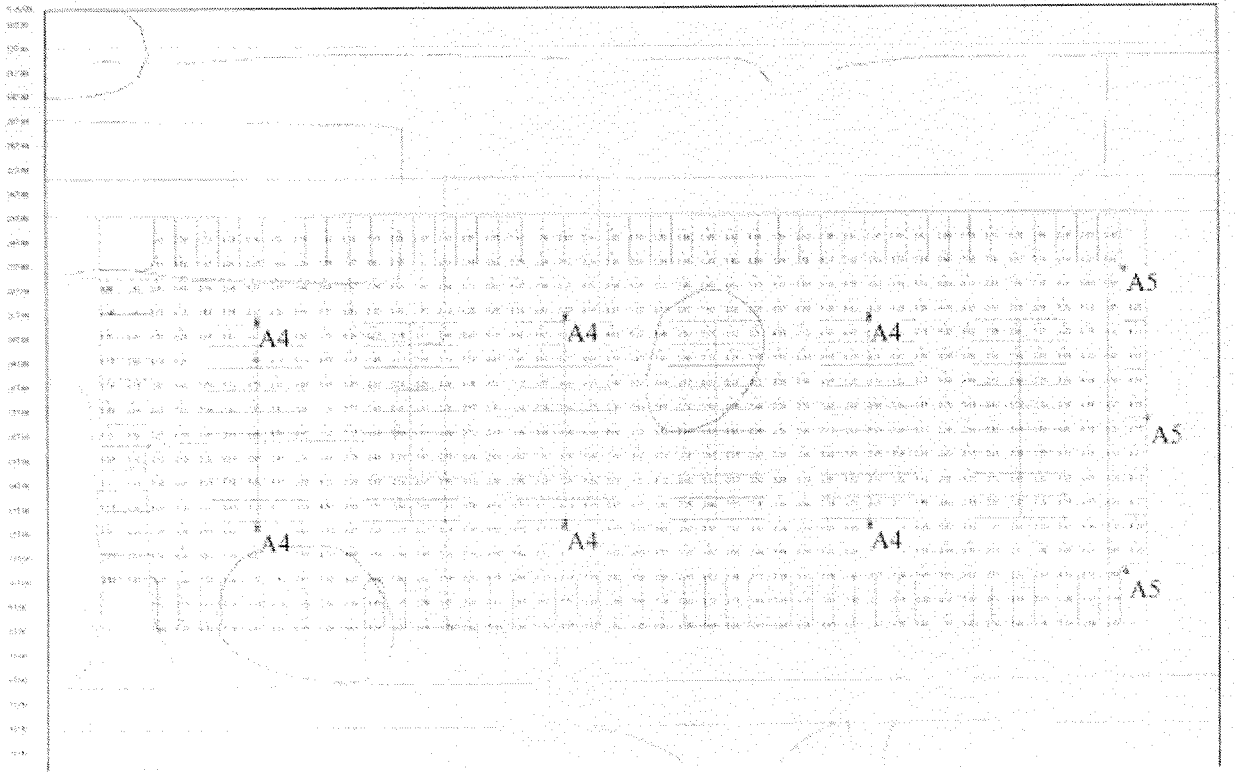
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	0.91	5.36	2.87	3.16	5.90

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
A4	6	--------	2-F3@33', , (2) F3 <EH19-Q-350PSMH>, LLF= 0.72;
A5	3	--------	1-F7, , (1) F7 <EH19-FM-350PSMH>, LLF= 0.72;



LitePro 2.017 Point-By-Point Results 4/21/2006

PROJECT: Jackson Barracks Master Plan/ GROUP: IMC Site Plan AREA: Area D POV/MVP GRID: New Grid
PREPARED BY: J. Sarradet
VALUES ARE FC, SCALE: 1 IN= 60.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0

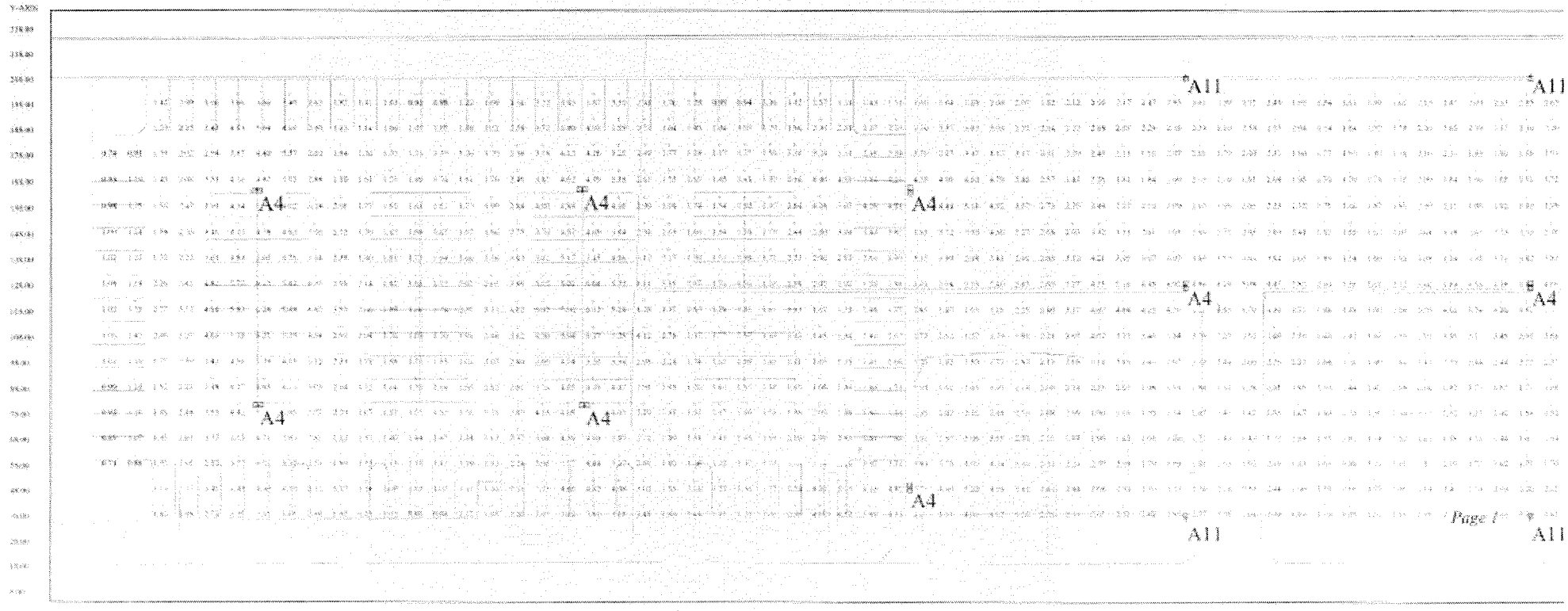
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	0.71	6.24	2.42	3.43	8.84

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
A11	12	--------	1-F4@33', , (1) F4 <EH19-3-350PSMH>, LLF= 0.72;
A4	12	--------	2-F3@33', , (2) F3 <EH19-Q-350PSMH>, LLF= 0.72;



| | | |

LitePro 2.017 Point-By-Point Results

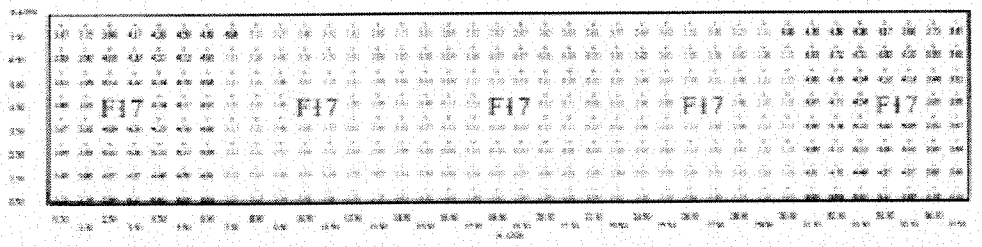
PROJECT: Jackson Barracks/1474 GROUP: Exterior AREA: Main Entrance GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / <SENW: 0, 50, 50, 50> / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	3.47	6.12	5.19	1.50	1.76

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F17	5	B1870A	Prescolite, 1060M5-100MHFE-746L, Lensed Downlights 8" REC DL W/ DIFFUSE REFL,SPEC, ALZAK TRIM & CL GLASS LENS LAMPS: (1) M-100/C, 7200 LUMENS, BLST: STANDARD, LLF = 0.49 @30.00



LitePro 2.017 Point-By-Point Results

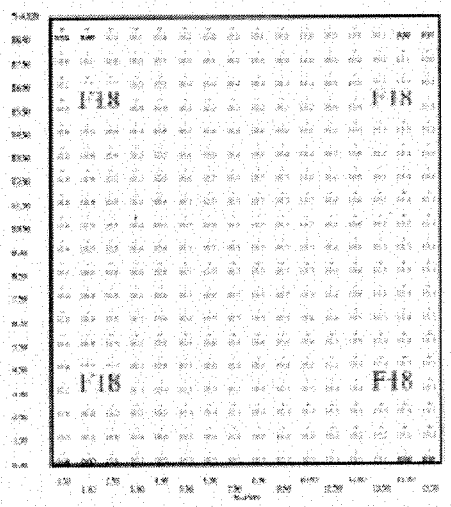
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: ATRIUM GRID: HGHI
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 0 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	9.91	10.71	10.41	1.05	1.08

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F18	4	B1387A	Prescolite, 1062M11-400MHFE-840, Open Downlights 12" RECESSED ELLIPSOIDAL, DOWNLIGHT WITH BLACK BAFFLE LAMPS: (1) M-400/C, 34000 LUMENS, BLST: STANDARD, LLF = 0.63 @56.00



(CONTRIBUTION FROM DOWNLIGHTS)

LitePro 2.017 Point-By-Point Results

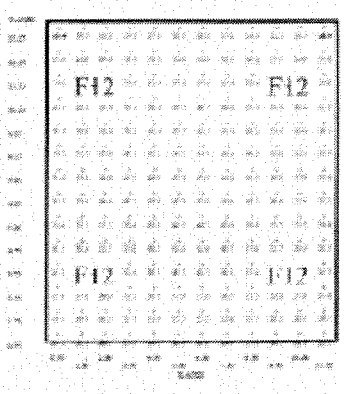
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: Vest GRID: hght
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	18.40	45.00	32.89	1.79	2.45

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F12	4	PL5499	Prescolite, CFTD832HEB-STFD802H, Open Downlights 8" CF DOWNLIGHT; CLEAR REFL., LAMPS: (2) (2) PL-T 42W/30/4P, (PHILIPS), 3200 LUMENS, BLST: (2) ES-1-CTH-42, LLF = 0.75 @10.0



LitePro 2.017 Point-By-Point Results

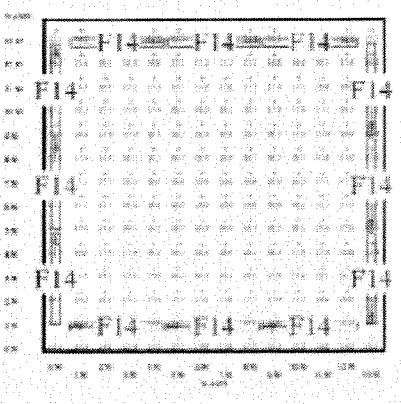
PROJECT: Jackson Barracks/1474 GROUP: Second Floor AREA: Vestibule GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	13.11	18.98	16.91	1.29	1.45

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F14	12	12757	Alera, PIC1T5HO-EB5-MIRO4, Covelight PIC Architectural Surface Moun, 7" X 48" 1L WALL WASH W/ MIRO4 LAMPS: (1) F54T5HO, 4400 LUMENS, BLST: EB5, LLF = 0.84 @26.00



LitePro 2.017 Point-By-Point Results

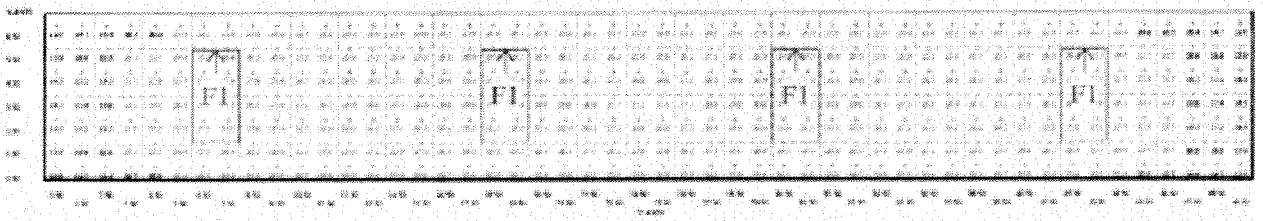
PROJECT: Jackson Barracks/1474 GROUP: Common AREA: Corr GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	12.00	31.46	24.82	2.07	2.62

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1	4	F1	LITHONIA LIGHTI, , [TEST] LTI 13260 [MANUFAC] LITH, VOLUMETRIC RECESSED LIGHTING F LAMPS: (2) FP28/835/ECO, 2730 LUMENS, BLST: , LLF = 0.86 @9.00



TYPICAL CORRIDOR SPACING

LitePro 2.017 Point-By-Point Results

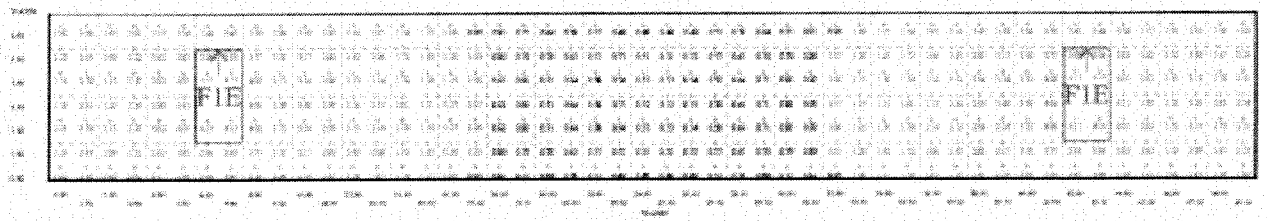
PROJECT: Jackson Barracks/1474 GROUP: Common AREA: Corr Emer GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	0.48	4.27	2.15	4.52	8.99

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1E	2	F1	LITHONIA LIGHTI, , [TEST] LTL13260 [MANUFAC] LITH, VOLUMETRIC RECESSED LIGHTING F LAMPS: (2) FP28/835/ECO, 800 LUMENS, BLST , LLF = 0.86 @9.00



TYPICAL CORRIDOR SPACING
(EMERGENCY FIXTURES)

LitePro 2.017 Point-By-Point Results

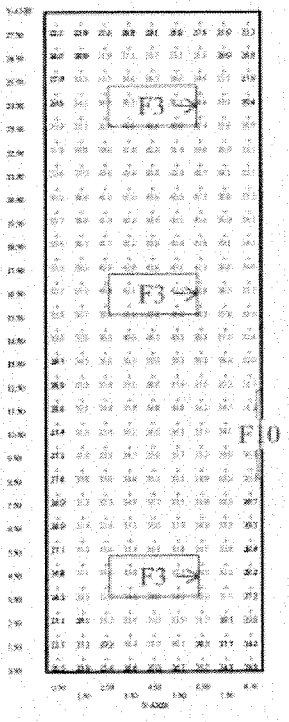
PROJECT: Jackson Barracks/1474 GROUP: Common AREA: Typ. Bathrm GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	20.45	43.90	34.36	1.68	2.15

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F10	1	TAB128	ALKCO LIGHTING, TAB128, EXTRUDED WHITE PAINTED METAL B, TUBULAR OPTICAL SWIVEL ASSEMBL LAMPS: (1) , 2900 LUMENS, BLST: , LLF = 0.81 @8.00
F3	3	L5530	LITHONIA LIGHTI, , [TEST] L5530.IES [MANUFAC] LIT, TUBI [LUMINAIRE] SPECIFICATION LAMPS: (3) , 2900 LUMENS, BLST: , LLF = 0.81 @9.50



TYPICAL BATHROOM SPACING

LitePro 2.017 Point-By-Point Results

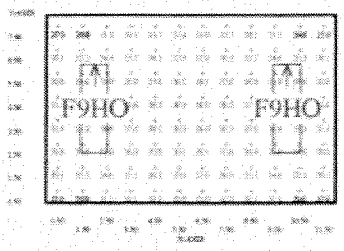
PROJECT: Jackson Barracks/1474 GROUP: Common AREA: Elec (3 & 4) GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	26.97	38.90	34.38	1.27	1.44

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F9HO	2	F9HO	LITHONIA LIGHTI, , [TEST] LTL9791 [MANUFAC] LITHO, HEAVY DUTY INDUSTRIAL, NOM. 13 LAMPS: (2) FP54T5/835/HO, 4450 LUMENS, BLST: , LLF = 0.86 @13.00



LitePro 2.017 Point-By-Point Results

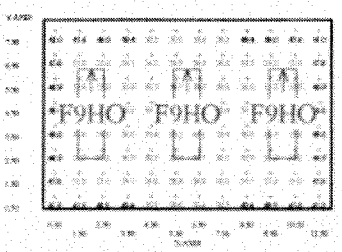
PROJECT: Jackson Barracks/1474 GROUP: Common AREA: Comm (3 & 4) GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

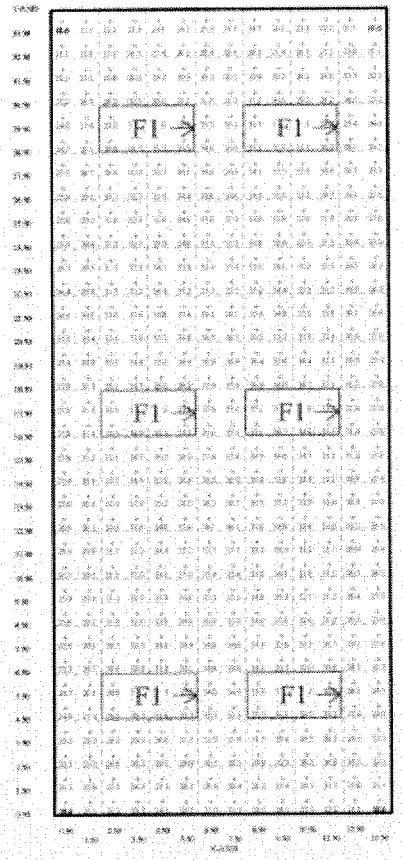
Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	40.98	60.05	52.80	1.29	1.47

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F9HO	3	F9HO	LITHONIA LIGHTI, , [TEST] LTL9791 [MANUFAC] LITHO, HEAVY DUTY INDUSTRIAL, NOM. 13 LAMPS: (2) FP54T5/835/HO, 4450 LUMENS, BLST: , LLF = 0.86 @13.00




F1
F1
F1
F1
F1
F1

LitePro 2.017 Point-By-Point Results

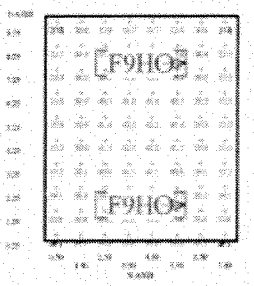
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: JANITOR GRID: HGHI
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

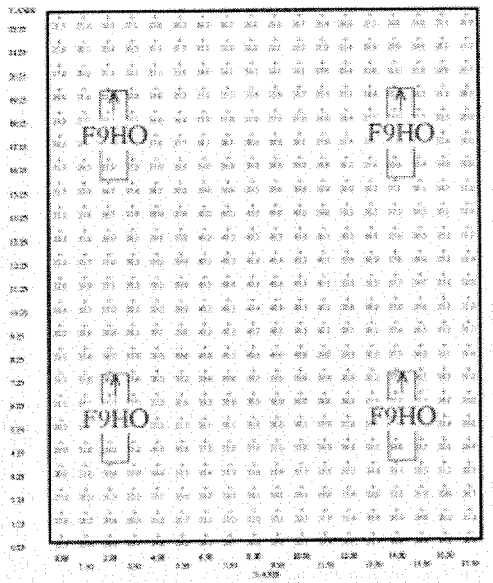
GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	27.85	42.27	36.86	1.32	1.52

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F9HO	2	F9HO	LITHONIA LIGHTI, , [TEST] LTL9791 [MANUFAC] LITHO, HEAVY DUTY INDUSTRIAL, NOM. 13 LAMPS: (2) FP54T5/835/HO, 4450 LUMENS, BLST: , LLF = 0.86 @13.00



LAMPS: (2) FP54T5/835/HO, 4450 LUMENS, BLST: , LLF = 0.86 @13.00



LitePro 2.017 Point-By-Point Results

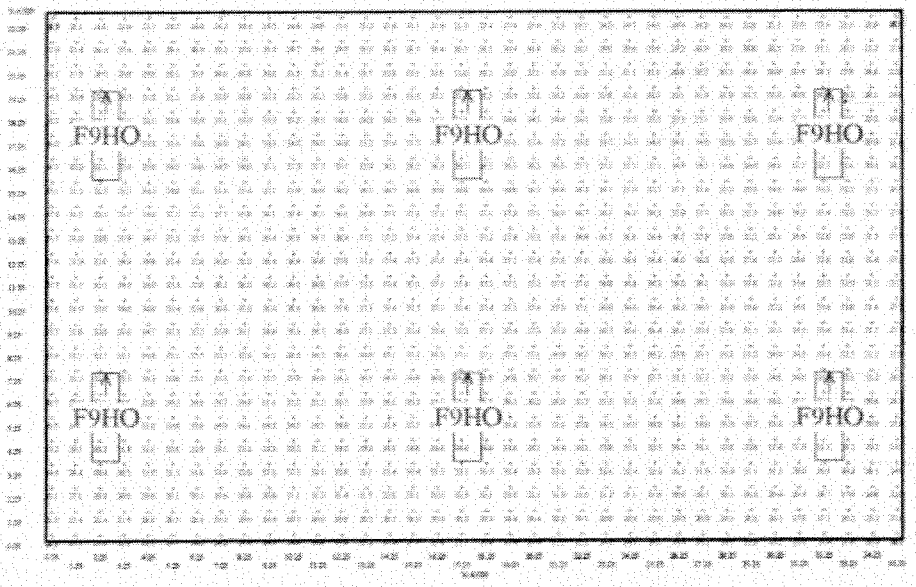
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: T&C Stor GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	18.08	37.53	32.37	1.79	2.08

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F9HO	6	F9HO	LITHONIA LIGHTI, , [TEST] LTL9791 [MANUFAC] LITHO, HEAVY DUTY INDUSTRIAL, NOM. 13 LAMPS: (2) FP54T5/835/HO, 4450 LUMENS, BLST: , LLF = 0.86 @13.00



LitePro 2.017 Point-By-Point Results

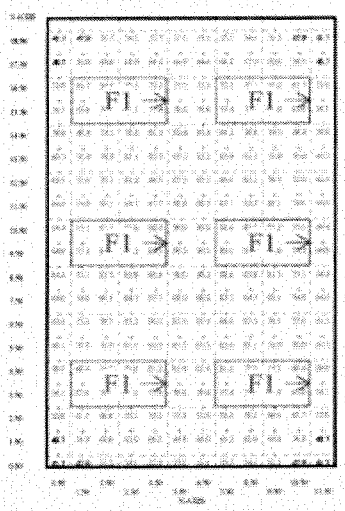
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: Security GRID: hghi2.5 (Audio/Visual III)
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	41.67	90.46	71.45	1.71	2.17

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1	6	F1	LITHONIA LIGHTI, , [TEST] LTL13260 [MANUFAC] LITH, VOLUMETRIC RECESSED LIGHTING F LAMPS: (2) FP28/835/ECO, 2730 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

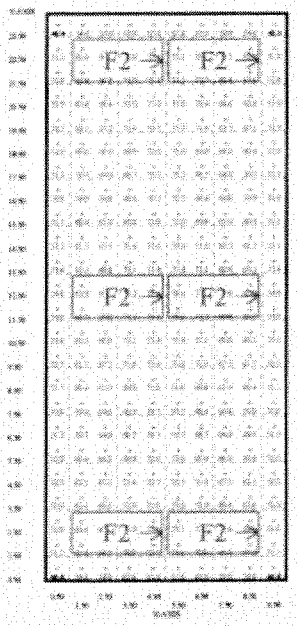
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: Supp Off GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	46.43	76.58	64.58	1.39	1.65

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F2	6	F2	LITHONIA GENERA, , [TEST]LTL13798 [DATE]MARCH 3,, [LUMCAT]2SP G 2 32 A12125 120 LAMPS: (2) FO32/835, 2850 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

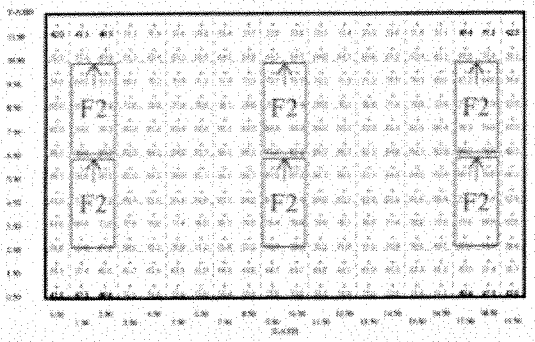
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: Supp Off 2 GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	42.00	87.15	69.64	1.66	2.07

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F2	6	F2	LITHONIA GENERA, , [TEST]LTL13798 [DATE]MARCH 3,, [LUMCAT]2SP G 2 32 A12125 120 LAMPS: (2) FO32/835, 2850 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

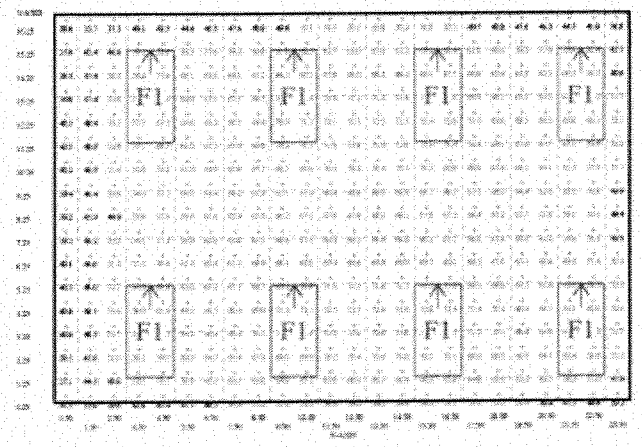
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: Recruiting GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	28.62	72.97	60.59	2.12	2.55

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1	8	F1	LITHONIA LIGHTI, , [TEST] LTL13260 [MANUFAC] LITH, VOLUMETRIC RECESSED LIGHTING F LAMPS: (2) FP28/835/ECO, 2730 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

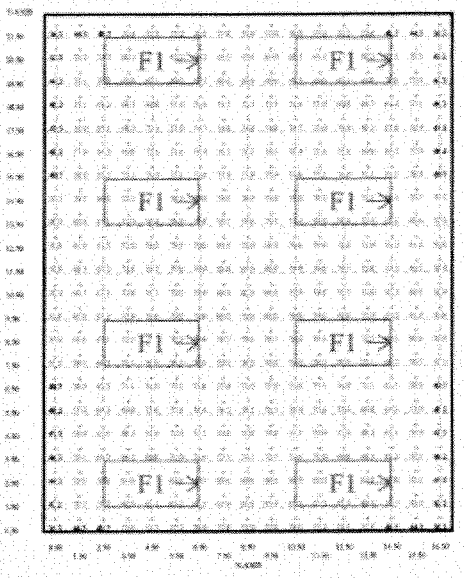
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: Fmly Sup GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	36.31	80.02	66.14	1.82	2.20

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1	8	F1	LITHONIA LIGHTI, , [TEST] LTL13260 [MANUFAC] LITH, VOLUMETRIC RECESSED LIGHTING F LAMPS: (2) FP28/835/ECO, 2730 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

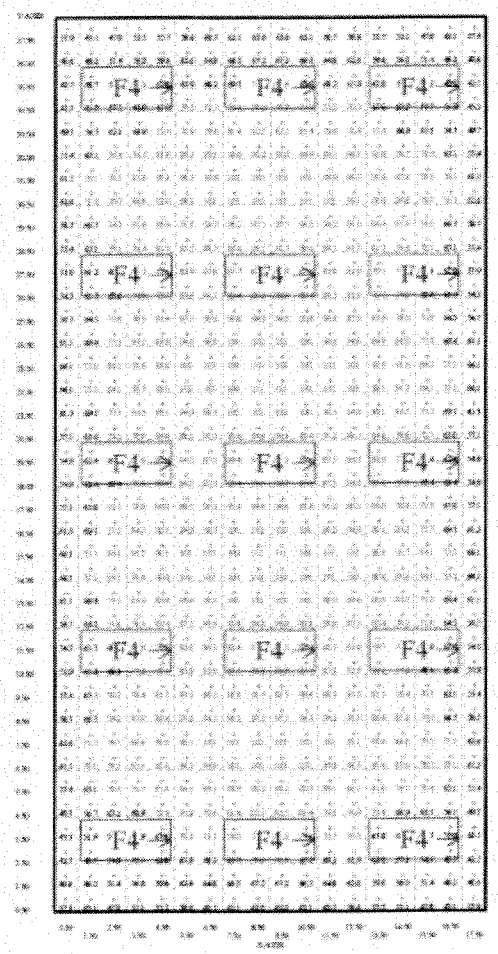
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: Classroom GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 0 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	37.90	110.53	77.45	2.04	2.92

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F4	15	F4-4L	LITHONIA LIGHTI, , [TEST] L5573.IES [MANUFAC] LIT, [LUMINAIRE] PARAMAX PARABOLIC LAMPS: (4) , 2900 LUMENS, BLST: , LLF = 0.81 @12.00



LitePro 2.017 Point-By-Point Results

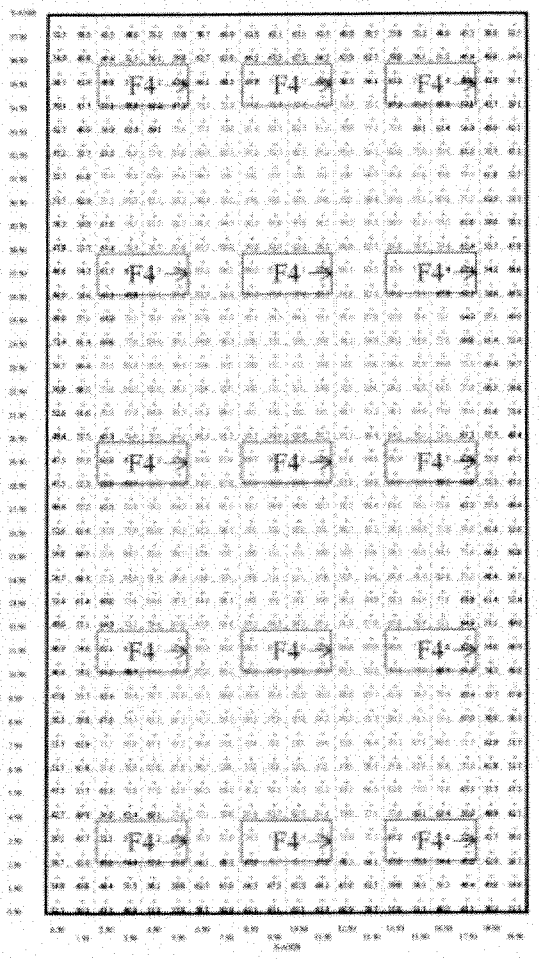
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: Classroom 2 GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 0 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	32.55	110.86	74.67	2.29	3.41

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F4	15	F4-4L	LITHONIA LIGHTI, , [TEST] L5573.IES [MANUFAC] LIT, [LUMINAIRE] PARAMAX PARABOLIC LAMPS: (4) , 2900 LUMENS, BLST: , LLF = 0.81 @12.00



LitePro 2.017 Point-By-Point Results

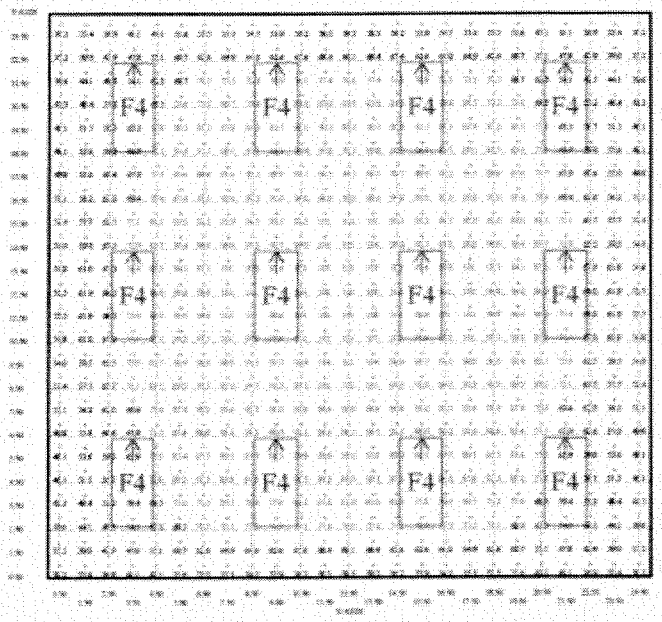
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: Classroom 3 GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 0 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	30.18	108.37	74.61	2.47	3.59

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F4	12	F4-4L	LITHONIA LIGHTI, , [TEST] L5573.IES [MANUFAC] LIT, [LUMINAIRE] PARAMAX PARABOLIC LAMPS: (4) , 2900 LUMENS, BLST: , LLF = 0.81 @12.00



LitePro 2.017 Point-By-Point Results

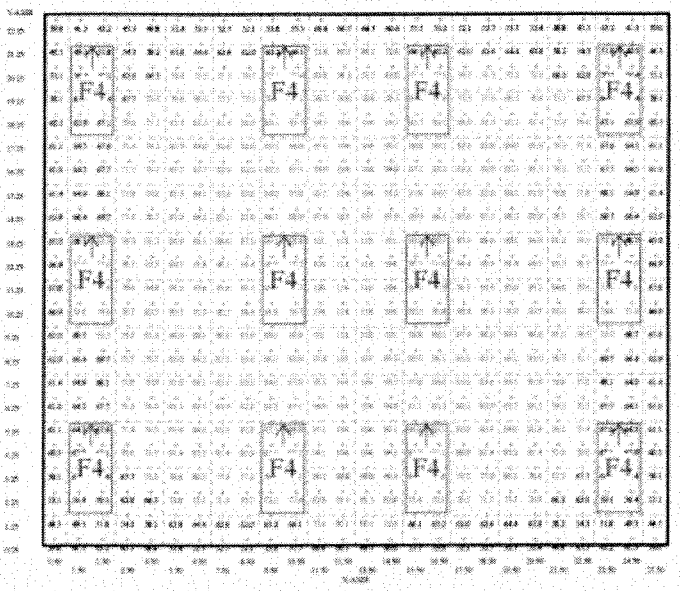
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: Library GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 0 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	38.99	115.54	76.36	1.96	2.96

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F4	12	F4-4L	LITHONIA LIGHTI, , [TEST] L5573.IES [MANUFAC] LIT, [LUMINAIRE] PARAMAX PARABOLIC LAMPS: (4) , 2900 LUMENS, BLST: , LLF = 0.81 @10.00



LitePro 2.017 Point-By-Point Results

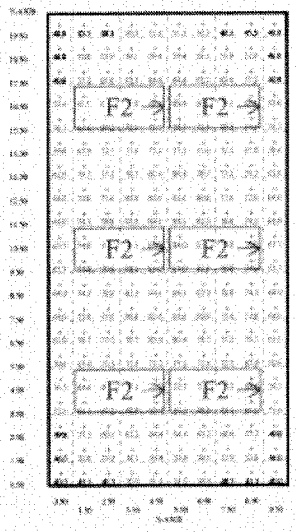
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: AV RM GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	40.02	84.94	66.53	1.66	2.12

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F2	6	F2	LITHONIA GENERA, , [TEST]LTL13798 [DATE]MARCH 3,, [LUMCAT]2SP G 2 32 A12125 120 LAMPS: (2) FO32/835, 2850 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

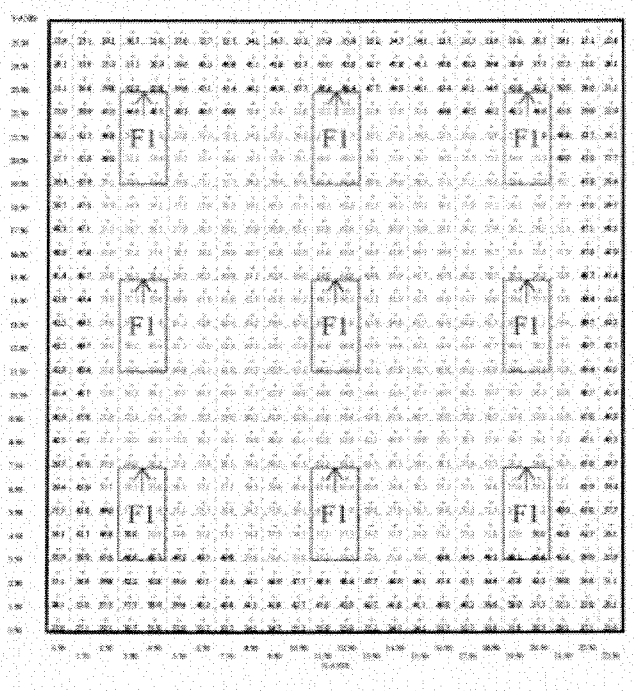
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: Break Rm GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	23.58	66.83	51.02	2.16	2.83

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1	9	F1	LITHONIA LIGHTI, , [TEST] LTL13260 [MANUFAC] LITH, VOLUMETRIC RECESSED LIGHTING F LAMPS: (2) FP28/835/ECO, 2730 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results 4/19/2006

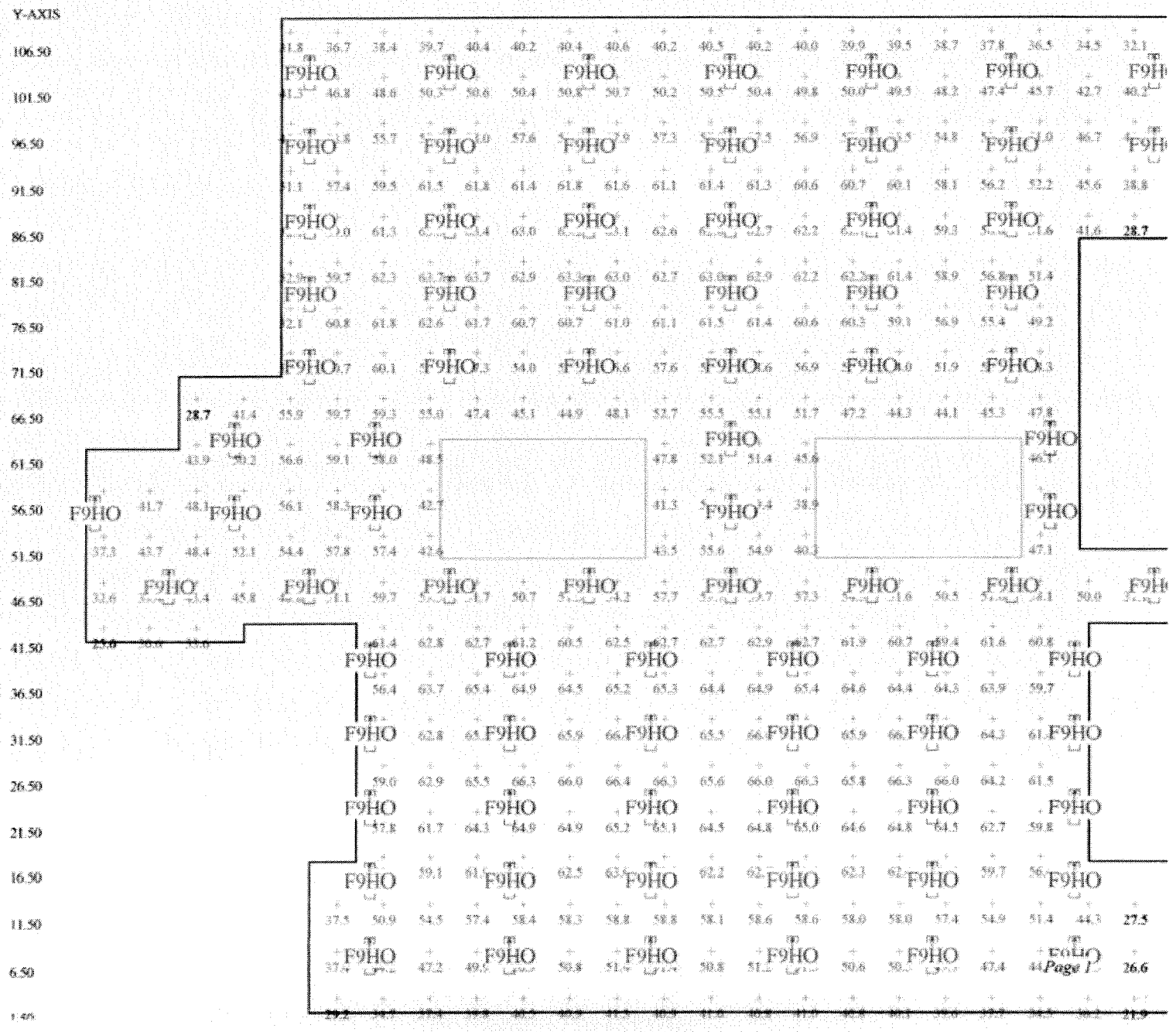
PROJECT: Jackson Barracks/1474 GROUP: First Floor AREA: Large Stor GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 16.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	15.76	66.41	53.20	3.37	4.21

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F9HO	79	F9HO	LITHONIA LIGHTI, , [TEST] LTL9791 [MANUFAC] LITHO, HEAVY DUTY INDUSTRIAL, NOM. 13 LAMPS: (2) FP54T5/835/HO, 4450 LUMENS, BLST: , LLF = 0.86 @13.00



LitePro 2.017 Point-By-Point Results

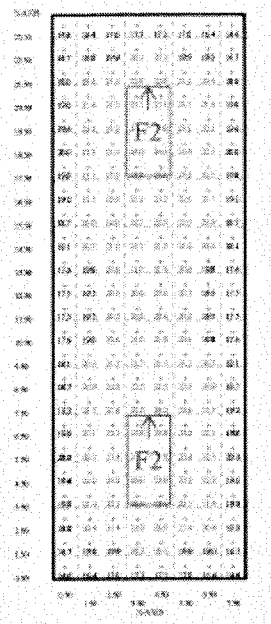
PROJECT: Jackson Barracks/1474 GROUP: Second Floor AREA: Corr 8x24 GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	14.60	24.00	20.53	1.41	1.64

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F2	2	F2	LITHONIA GENERA, , [TEST]LTL13798 [DATE]MARCH 3,, [LUMCAT]2SP G 2 32 A12125 120 LAMPS: (2) FO32/835, 2850 LUMENS, BLST: , LLF = 0.86 @10.00



EQUIPMENT LIFT VESTIBULE

LitePro 2.017 Point-By-Point Results

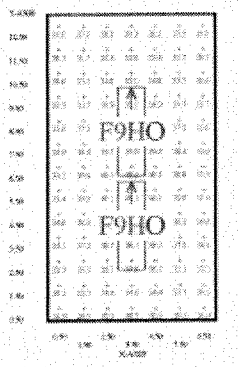
PROJECT: Jackson Barracks/1474 GROUP: Second Floor AREA: Train Aid Stor GRID: HGHI
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	25.03	40.50	34.68	1.39	1.62

Luminaires Used

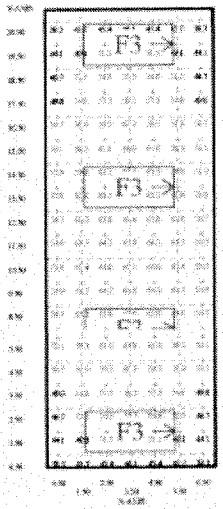
TYPE	QTY	TEST#	DESCRIPTION
F9HO	2	F9HO	LITHONIA LIGHTI, , [TEST] LTL9791 [MANUFAC] LITHO, HEAVY DUTY INDUSTRIAL, NOM. 13 LAMPS: (2) FP54T5/835/HO, 4450 LUMENS, BLST: , LLF = 0.86 @13.00



LitePro 2.017 Point-By-Point Results 4/20/2006

PROJECT: Jackson Barracks/1474 GROUP: Second Floor AREA: AUDIO VIS EQ GRID: HGHI

PREPARED BY:



LitePro 2.017 Point-By-Point Results

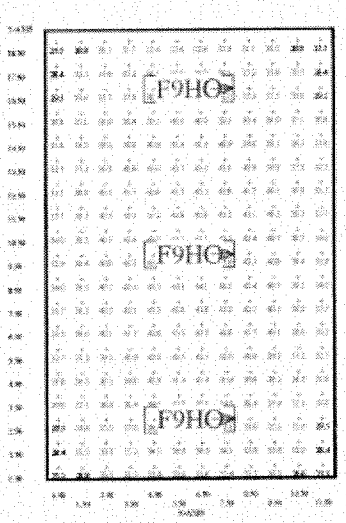
PROJECT: Jackson Barracks/1474 GROUP: Second Floor AREA: MAIN ELEC GRID: HGHI
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	25.48	44.11	37.29	1.46	1.73

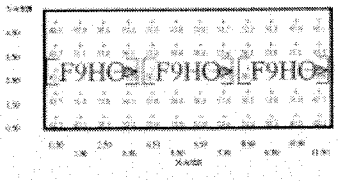
Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F9HO	3	F9HO	LITHONIA LIGHTI, , [TEST] LTL9791 [MANUFAC] LITHO, HEAVY DUTY INDUSTRIAL, NOM. 13 LAMPS: (2) FP54T5/835/HO, 4450 LUMENS, BLST: , LLF = 0.86 @13.00



LitePro 2.017 Point-By-Point Results 4/20/2006

PROJECT: Jackson Barracks/1474 GROUP: Second Floor AREA: COMM GRID: HGHI



LitePro 2.017 Point-By-Point Results

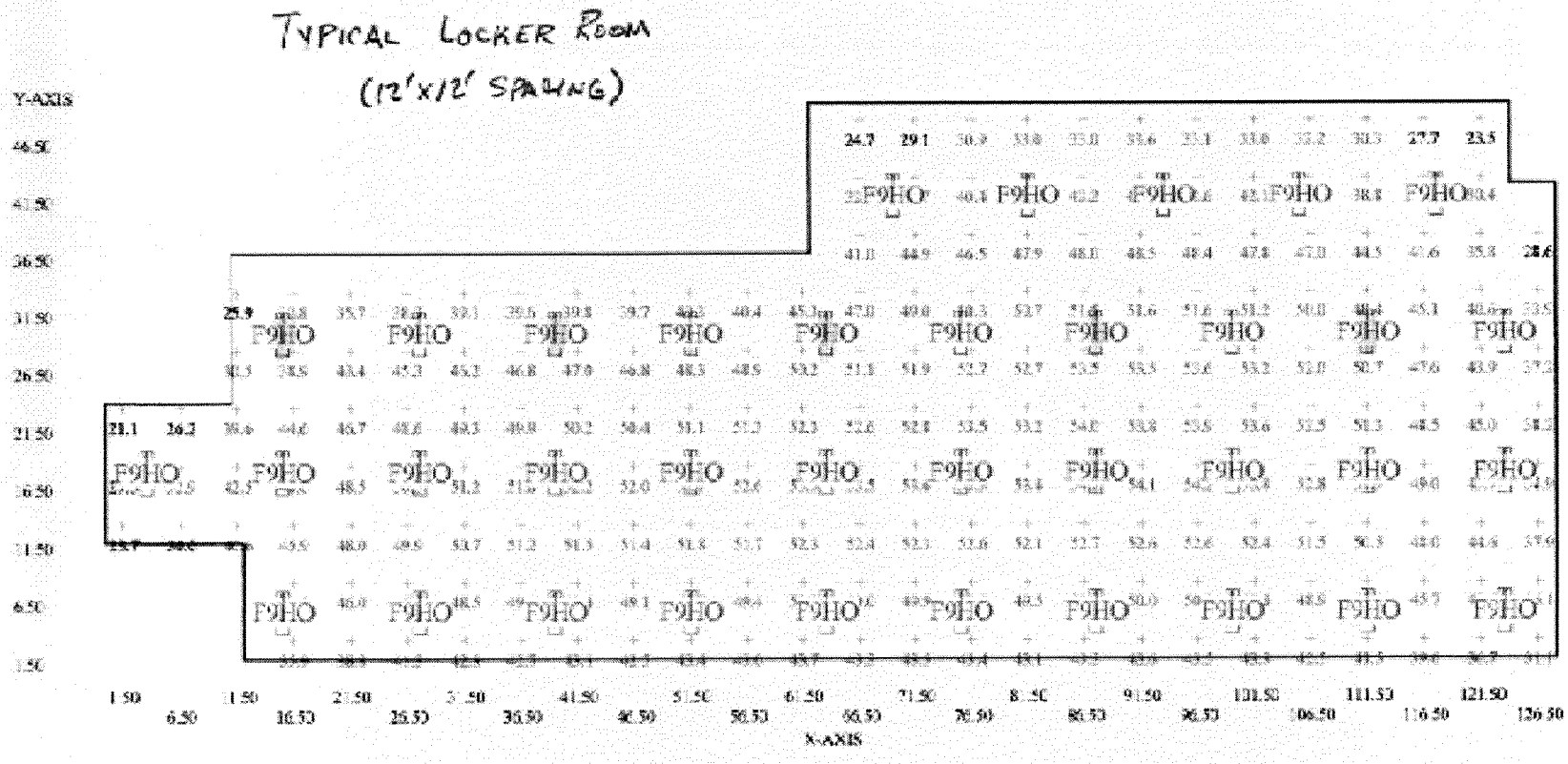
PROJECT: Jackson Barracks/1474 GROUP: Second Floor AREA: Lockers 221 GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 16.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	21.06	54.20	45.08	2.14	2.57

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F9HO	36	F9HO	LITHONIA LIGHTI, , [TEST] LTL9791 [MANUFAC] LITHO, HEAVY DUTY INDUSTRIAL, NOM. 13 LAMPS: (2) FP54T5/835/HO, 4450 LUMENS, BLST: , LLF = 0.86 @13.00



LitePro 2.017 Point-By-Point Results

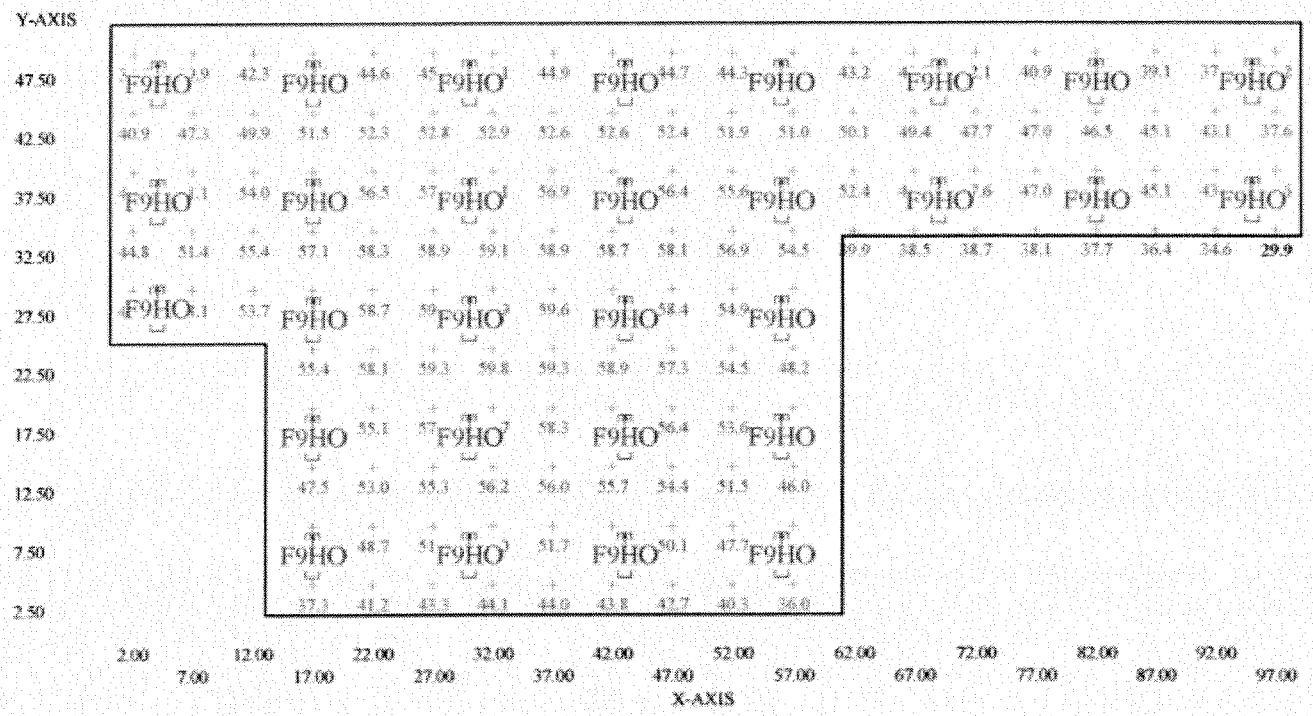
PROJECT: Jackson Barracks/1474 GROUP: Second Floor AREA: Mech Rm R1 GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 16.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20
Computed in accordance with IES recommendations

Statistics

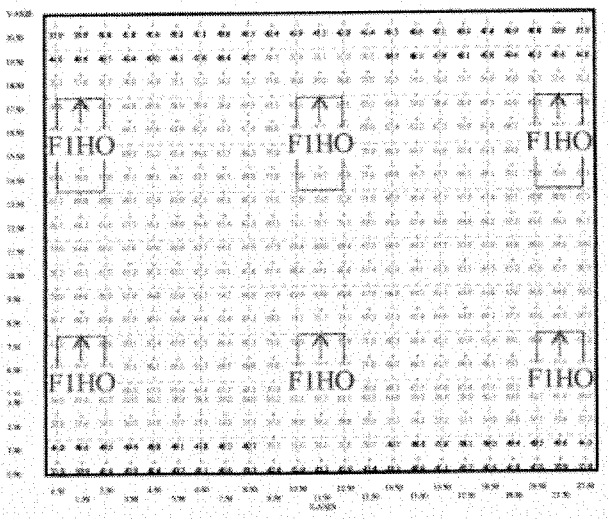
GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	29.87	59.85	49.28	1.65	2.00

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F9HO	29	F9HO	LITHONIA LIGHTI, , [TEST] LTL9791 [MANUFAC] LITHO, HEAVY DUTY INDUSTRIAL, NOM. 13 LAMPS: (2) FP54T5/835/HO, 4450 LUMENS, BLST: , LLF = 0.86 @13.00



F1HO	6	F1HO	LITHONIA LIGHTING, [TEST]LTL13008 [DATE]JUNE 1, 2, 54T5HO [LUMINAIRE]VOLUMETRIC R LAMPS: (2) F54W/835, 4450 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

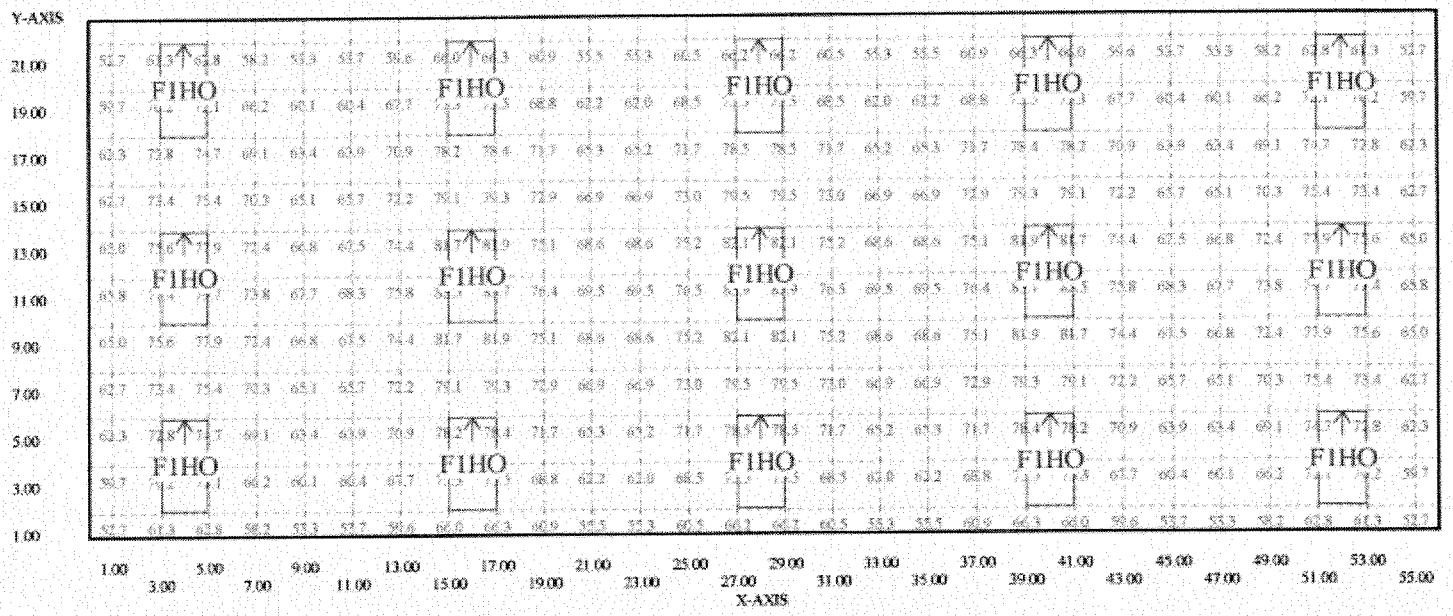
PROJECT: Jackson Barracks/1474 GROUP: Second Floor AREA: 1ST BN GRID: HGHI2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	52.72	83.95	69.14	1.31	1.59

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1HO	15	F1HO	LITHONIA LIGHTI, , [TEST]LTL13008 [DATE]JUNE 1, 2, 54T5HO [LUMINAIRE]VOLUMETRIC R LAMPS: (2) F54W/835, 4450 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

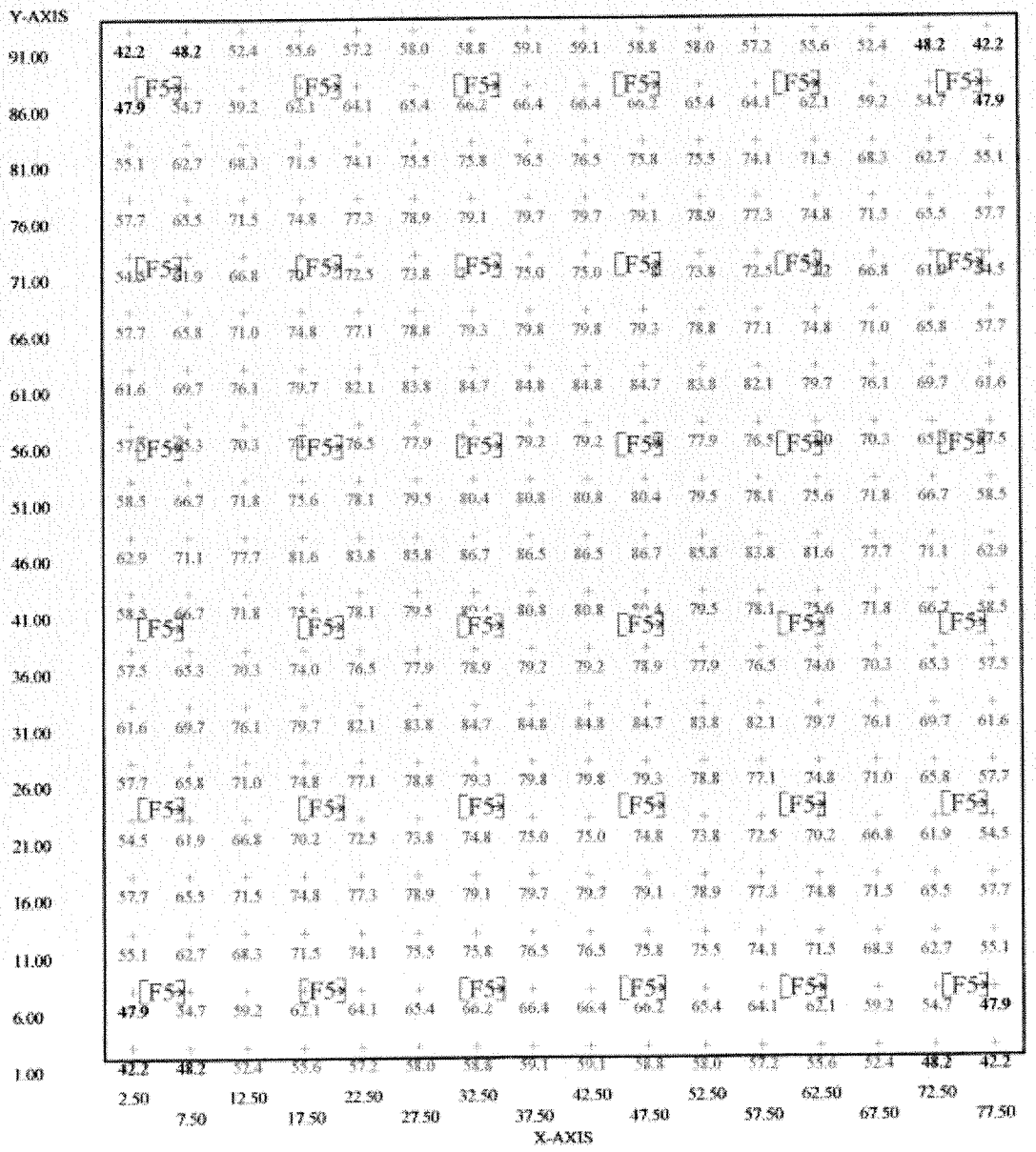
PROJECT: Jackson Barracks/1474 GROUP: Second Floor AREA: Assembly GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 16.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	42.22	86.73	69.82	1.65	2.05

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F5	36	13388	Columbia, LHR4-654-LSST-EB5, LHR Industrial, 2' X 4' 6-LAMP WITH SPECULAR R LAMPS: (6) F54T5, 4400 LUMENS, BLST: ICN2S54, LLF = 0.81 @24.00



LitePro 2.017 Point-By-Point Results 4/20/2006

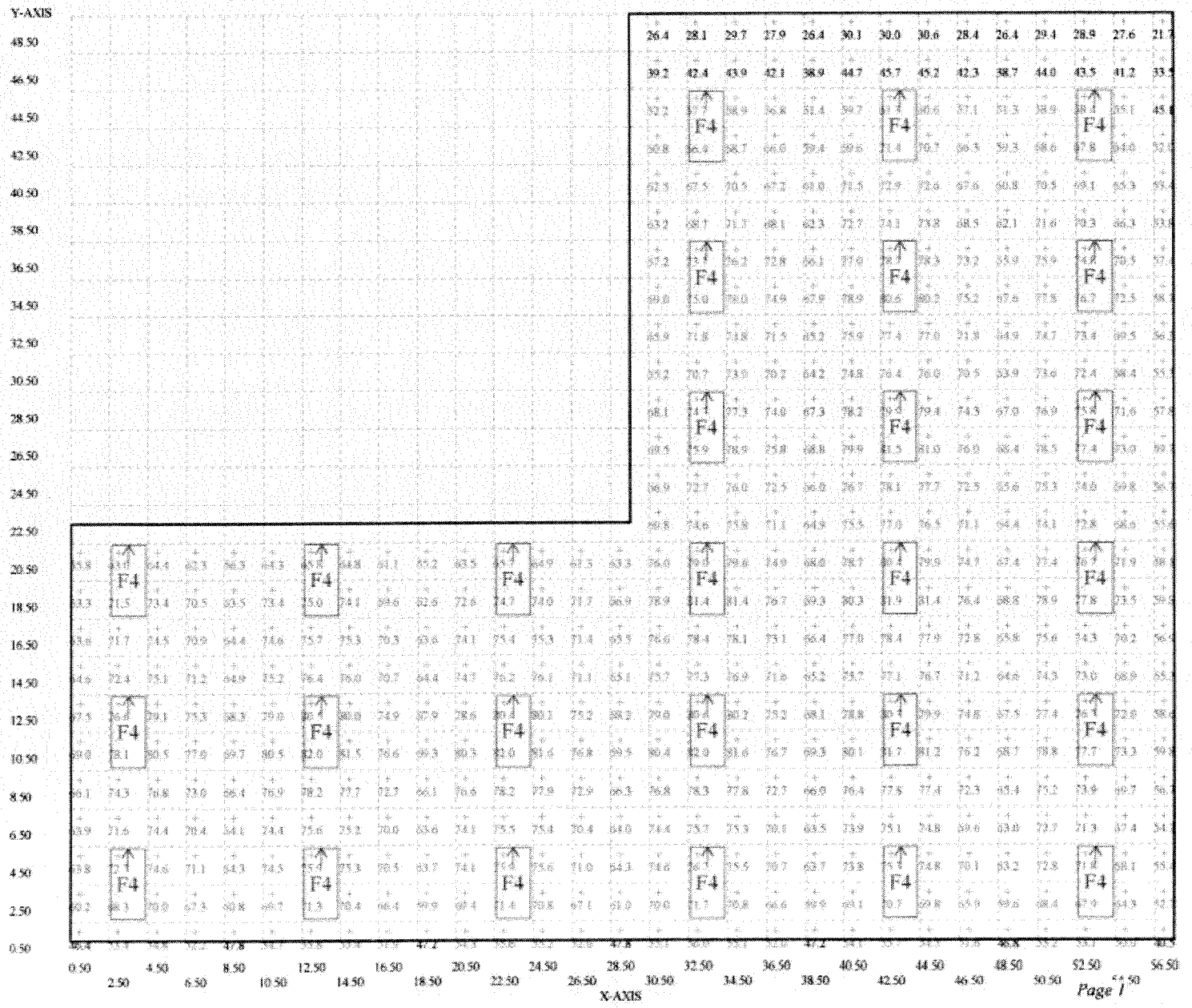
PROJECT: Jackson Barracks/1474 GROUP: Second Floor AREA: TRAINING / SIM GRID: HGHI2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	21.68	82.05	67.83	3.13	3.78

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F4	27	F4-4L	LITHONIA LIGHTI, , [TEST] L5573.IES [MANUFAC] LIT, [LUMINAIRE] PARAMAX PARABOLIC LAMPS: (4) , 2900 LUMENS, BLST: , LLF = 0.81 @10.00



LitePro 2.017 Point-By-Point Results

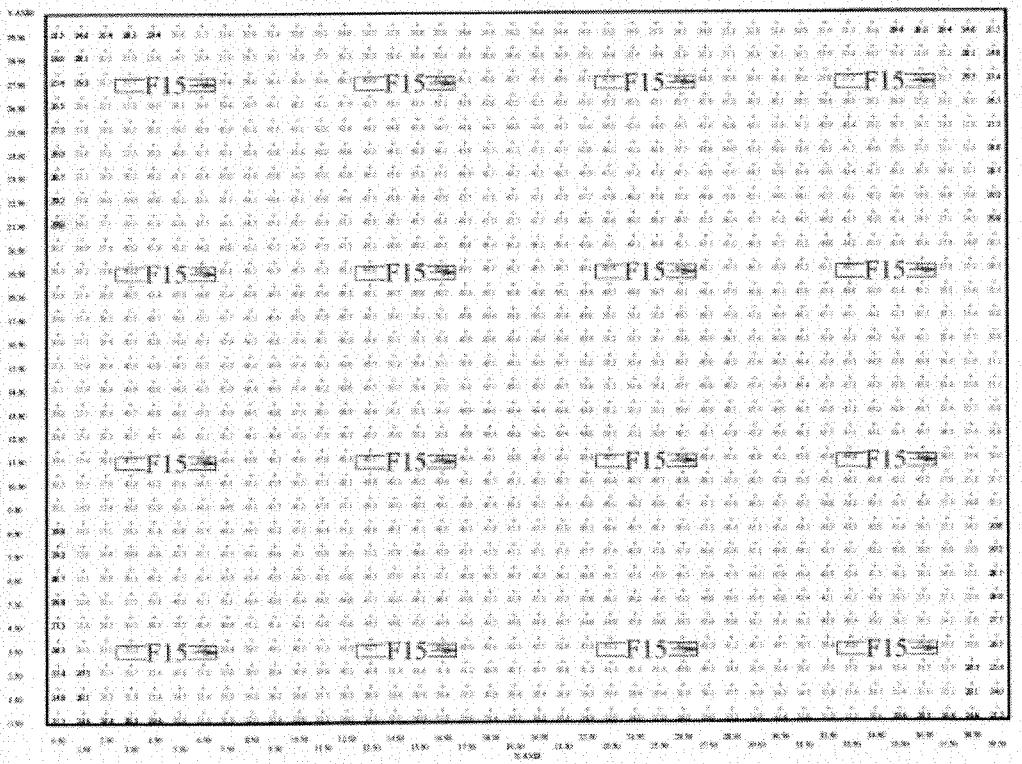
PROJECT: Jackson Barracks/1474 GROUP: Second Floor AREA: Vault GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	21.51	50.39	41.80	1.94	2.34

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F15	16	HP05937	Columbia, FSPH4-332-EB8, Extreme SSHZ Extreme 1 X 4 3-LAMP STA, LAMPS: (3) F40T12, 2900 LUMENS, BLST: LE, LLF = 0.70 @9.50



LitePro 2.017 Point-By-Point Results

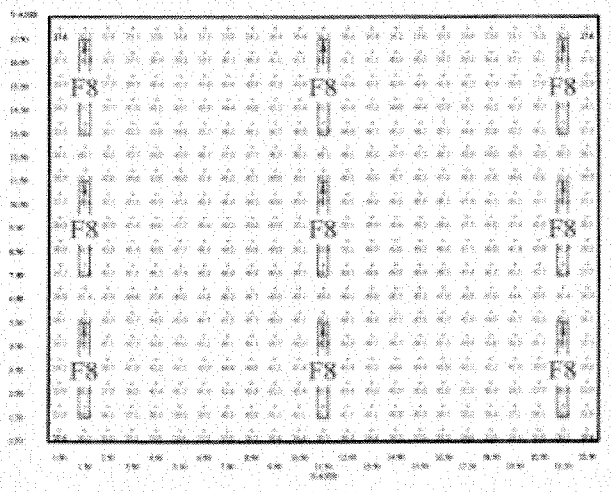
PROJECT: Jackson Barracks/1474 GROUP: Third Floor AREA: mech 23x18 GRID: hghi
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	27.61	50.07	42.40	1.54	1.81

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F8	9	F8	LITHONIA LIGHTI, , [TEST] LTL5739 [MANUFAC] LITHO, HEAVY DUTY STRIPLIGHT 5" X 4' LAMPS: (2) , 2900 LUMENS, BLST: , LLF = 0.86 @13.00



LitePro 2.017 Point-By-Point Results

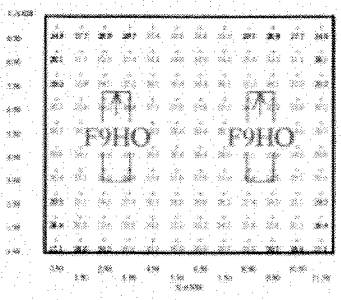
PROJECT: Jackson Barracks/1474 GROUP: Third Floor AREA: STOR 12X10 GRID: HGHI
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	24.86	38.41	33.26	1.34	1.54

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F9HO	2	F9HO	LITHONIA LIGHTI, , [TEST] LTL9791 [MANUFAC] LITHO, HEAVY DUTY INDUSTRIAL, NOM. 13 LAMPS: (2) FP54T5/835/HO, 4450 LUMENS, BLST: , LLF = 0.86 @13.00



LitePro 2.017 Point-By-Point Results

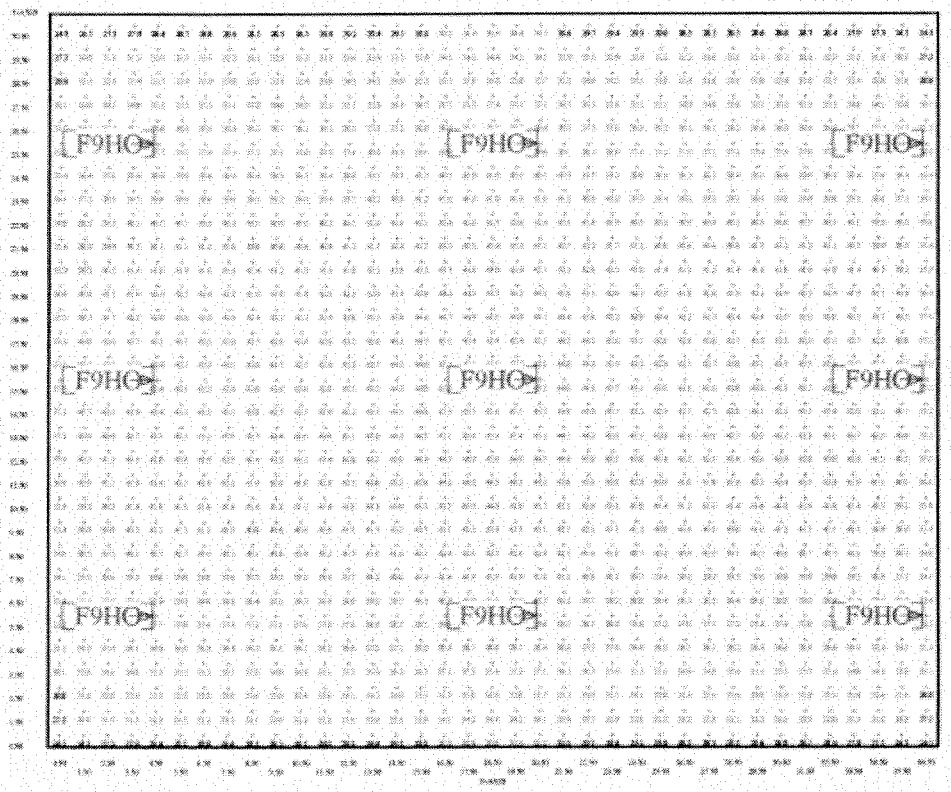
PROJECT: Jackson Barracks/1474 GROUP: Third Floor AREA: STOR 37X31 GRID: HGHI
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	24.28	45.65	38.51	1.59	1.88

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F9HO	9	F9HO	LITHONIA LIGHTI, , [TEST] LTL9791 [MANUFAC] LITHO, HEAVY DUTY INDUSTRIAL, NOM. 13 LAMPS: (2) FP54T5/835/HO, 4450 LUMENS, BLST: , LLF = 0.86 @13.00



LitePro 2.017 Point-By-Point Results

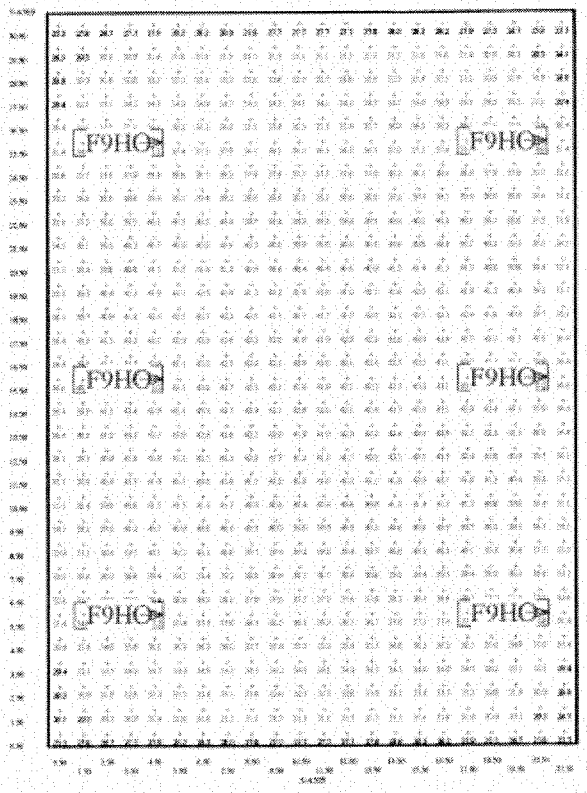
PROJECT: Jackson Barracks/1474 GROUP: Third Floor AREA: STOR 22X31 GRID: HGHI
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	23.34	43.13	37.11	1.59	1.85

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F9HO	6	F9HO	LITHONIA LIGHTI, , [TEST] LTL9791 [MANUFAC] LITHO, HEAVY DUTY INDUSTRIAL, NOM. 13 LAMPS: (2) FP54T5/835/HO, 4450 LUMENS, BLST: , LLF = 0.86 @13.00



LitePro 2.017 Point-By-Point Results

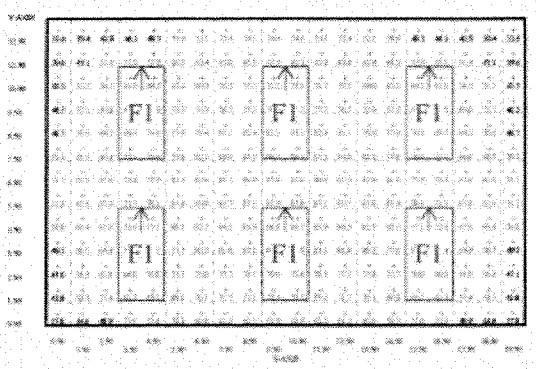
PROJECT: Jackson Barracks/1474 GROUP: Third Floor AREA: Office 20x13 GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	33.59	87.87	66.68	1.98	2.62

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1	6	F1	LITHONIA LIGHTI, , [TEST] LTL13260 [MANUFAC] LITH, VOLUMETRIC RECESSED LIGHTING F LAMPS: (2) FP28/835/ECO, 2730 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

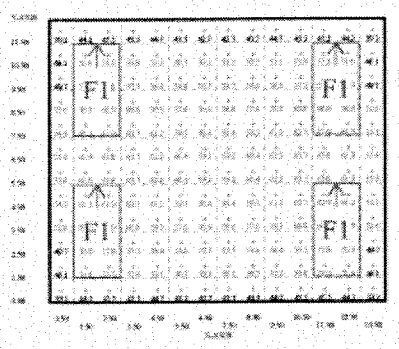
PROJECT: Jackson Barracks/1474 GROUP: Third Floor AREA: Office 14x12 GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	39.22	63.82	54.81	1.40	1.63

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1	4	F1	LITHONIA LIGHTI, , [TEST] LTL13260 [MANUFAC] LITH, VOLUMETRIC RECESSED LIGHTING F LAMPS: (2) FP28/835/ECO, 2730 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

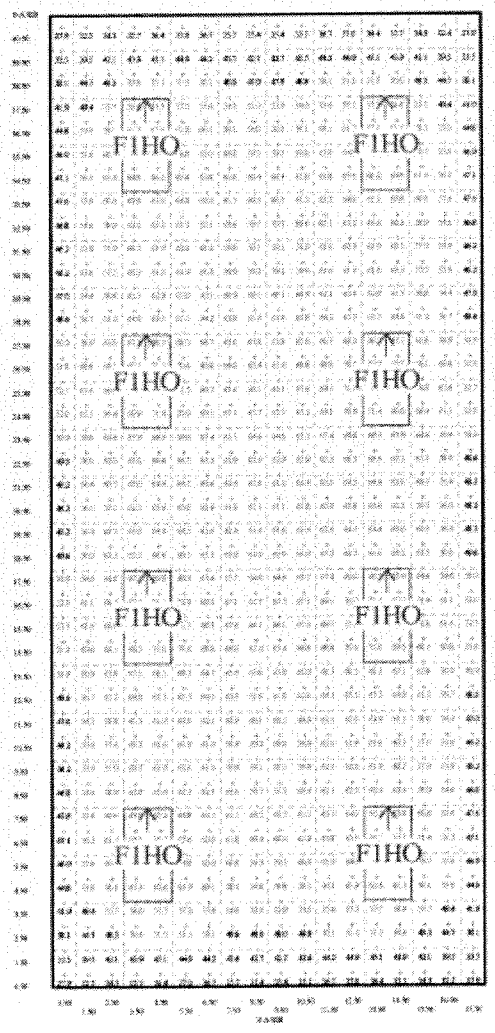
PROJECT: Jackson Barracks/1474 GROUP: Third Floor AREA: Medical GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	27.86	71.96	58.07	2.08	2.58

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1HO	8	F1HO	LITHONIA LIGHTI, , [TEST]LTL13008 [DATE]JUNE 1, 2, 54T5HO [LUMINAIRE]VOLUMETRIC R LAMPS: (2) F54W/835, 4450 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

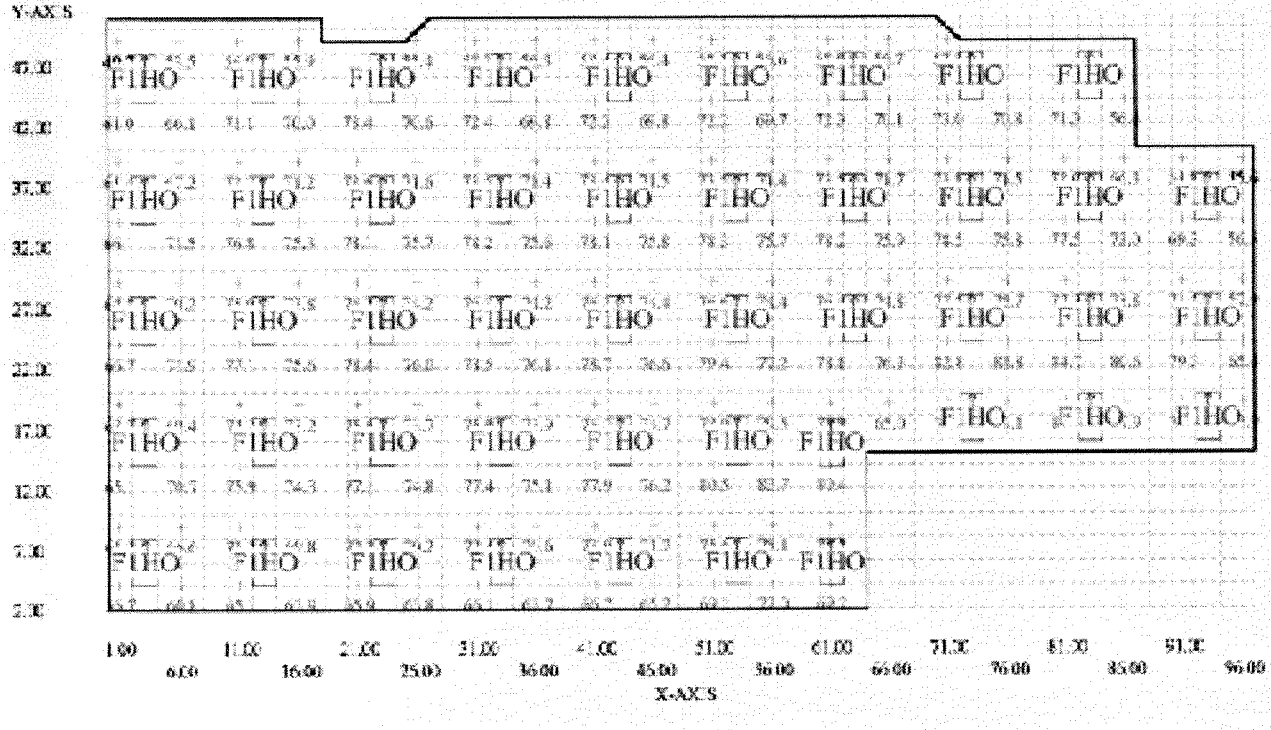
PROJECT: Jackson Barracks/1474 GROUP: Third Floor AREA: OPEN OFFICE 318 GRID: HGHI2.5
PREPARED BY:
VALUES ARE FC, SCALE 1 IN= 16.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	45.65	84.70	71.21	1.56	1.86

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1HO	46	F1HC	LITHONIA LIGHTI, , [TEST]LTL13008 [DATE]JUNE 1, 2, 54T5HO [LUMINAIRE]VOLUMETRIC R LAMPS: (2) F54W835, 4450 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

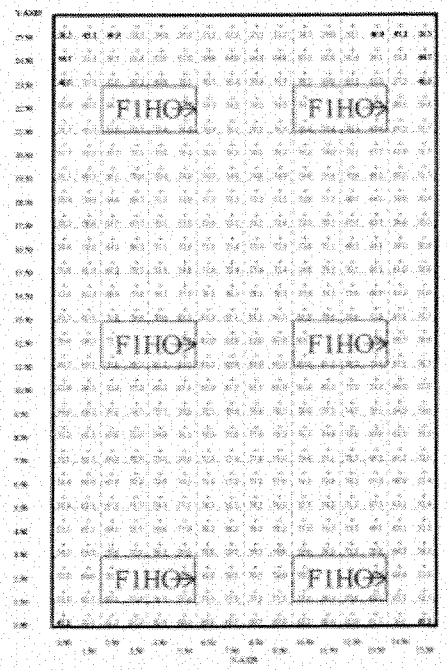
PROJECT: Jackson Barracks/1474 GROUP: Third Floor AREA: Conf 16x26 GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	38.53	83.18	68.85	1.79	2.16

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1HO	6	F1HO	LITHONIA LIGHTI, , [TEST]LTL13008 [DATE]JUNE 1, 2, 54T5HO [LUMINAIRE]VOLUMETRIC R LAMPS: (2) F54W/835, 4450 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

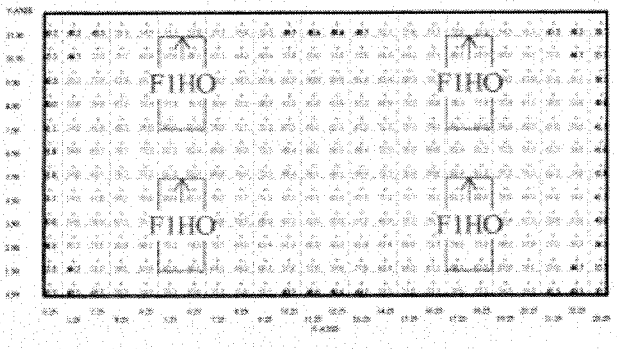
PROJECT: Jackson Barracks/1474 GROUP: Third Floor AREA: Conf 23.5x12 R1 GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	30.69	82.40	62.63	2.04	2.68

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1HO	4	F1HO	LITHONIA LIGHTI, , [TEST]LTL13008 [DATE]JUNE 1, 2, 54T5HO [LUMINAIRE]VOLUMETRIC R LAMPS: (2) F54W/835, 4450 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

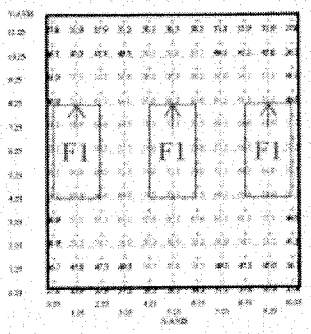
PROJECT: Jackson Barracks/1474 GROUP: Third Floor AREA: BREAK RM GRID: HGHI2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	27.82	75.53	54.46	1.96	2.72

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1	3	F1	LITHONIA LIGHTI, , [TEST] LTL13260 [MANUFAC] LITH, VOLUMETRIC RECESSED LIGHTING F LAMPS: (2) FP28/835/ECO, 2730 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

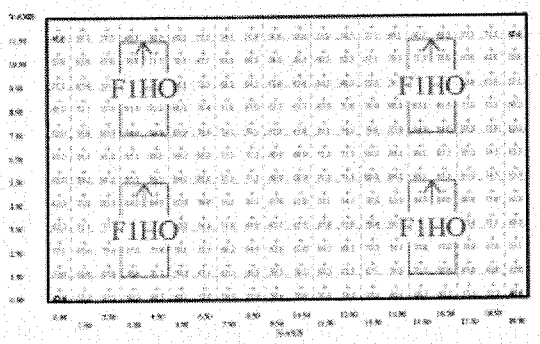
PROJECT: Jackson Barracks/1474 GROUP: Fourth Floor AREA: Conf. Rm 20X12 GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	45.56	86.09	69.28	1.52	1.89

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1HO	4	F1HO	LITHONIA LIGHTI, , [TEST]LTL13008 [DATE]JUNE 1, 2, 54T5HO [LUMINAIRE]VOLUMETRIC R LAMPS: (2) F54W/835, 4450 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

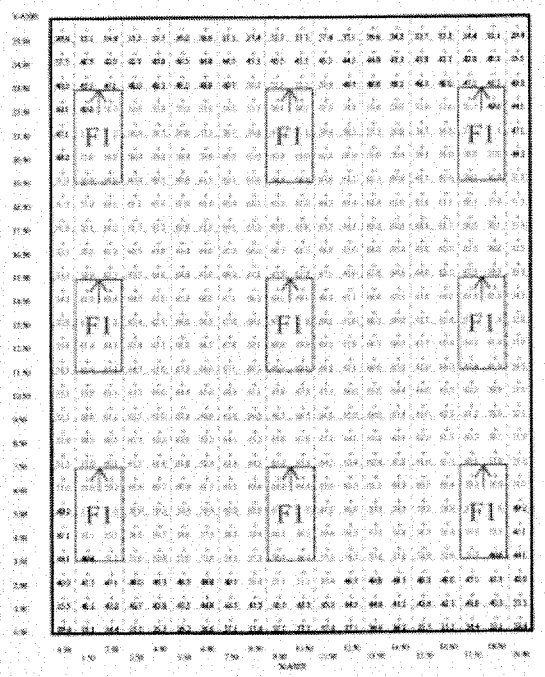
PROJECT: Jackson Barracks/1474 GROUP: Fourth Floor AREA: Office 20X26 GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	29.39	69.95	56.19	1.91	2.38

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1	9	F1	LITHONIA LIGHTI, , [TEST] LTL13260 [MANUFAC] LITH, VOLUMETRIC RECESSED LIGHTING F LAMPS: (2) FP28/835/ECO, 2730 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

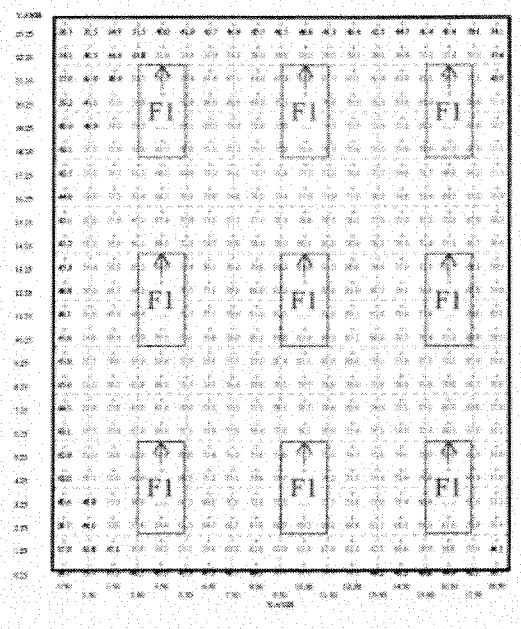
PROJECT: Jackson Barracks/1474 GROUP: Fourth Floor AREA: Office 19X23.5 GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	26.73	83.10	64.59	2.42	3.11

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1	9	F1	LITHONIA LIGHTI, , [TEST] LTL13260 [MANUFAC] LITH, VOLUMETRIC RECESSED LIGHTING F LAMPS: (2) FP28/835/ECO, 2730 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results

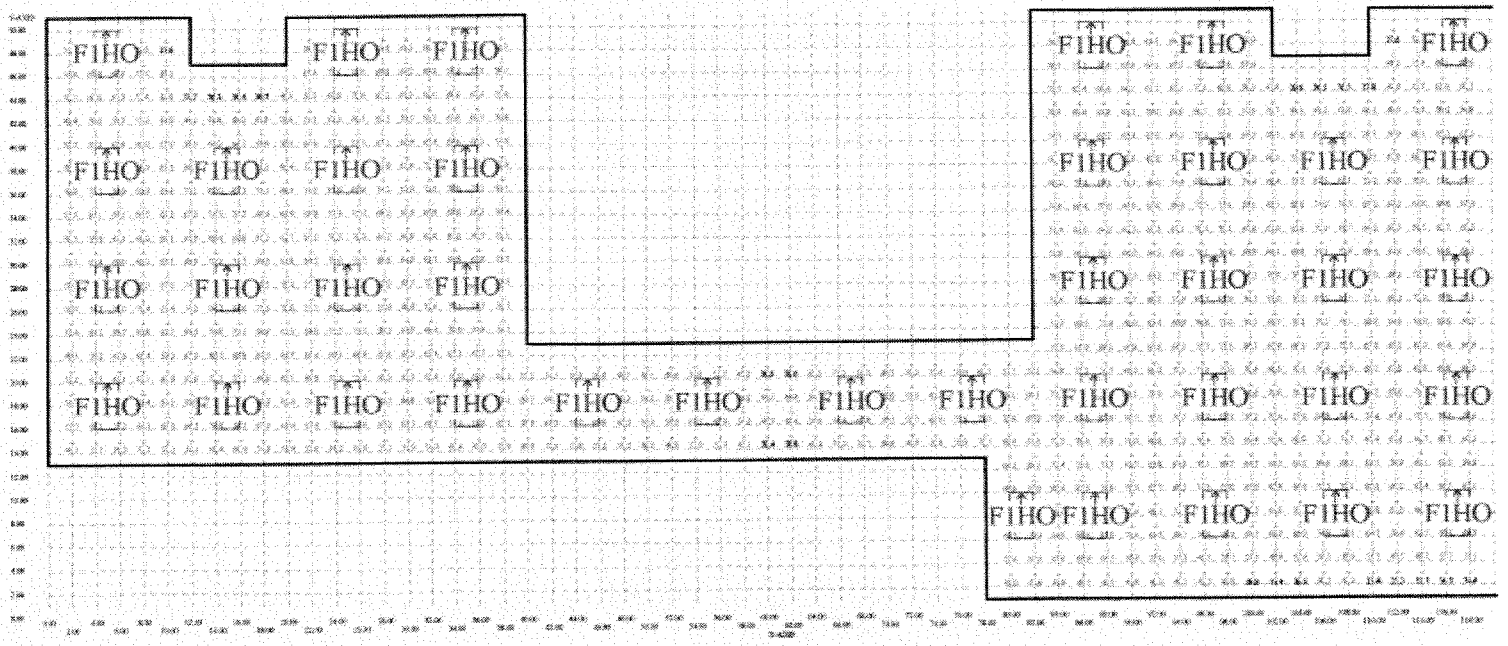
PROJECT: Jackson Barracks/1474 GROUP: Fourth Floor AREA: OPEN OFFICE 414 GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 16.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	29.91	92.73	65.32	2.18	3.10

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1HO	39	F1HO	LITHONIA LIGHTI, , [TEST]LTL13008 [DATE]JUNE 1, 2, 54T5HO [LUMINAIRE]VOLUMETRIC R LAMPS: (2) F54W/835, 4450 LUMENS, BLST: , LLF = 0.86



LitePro 2.017 Point-By-Point Results

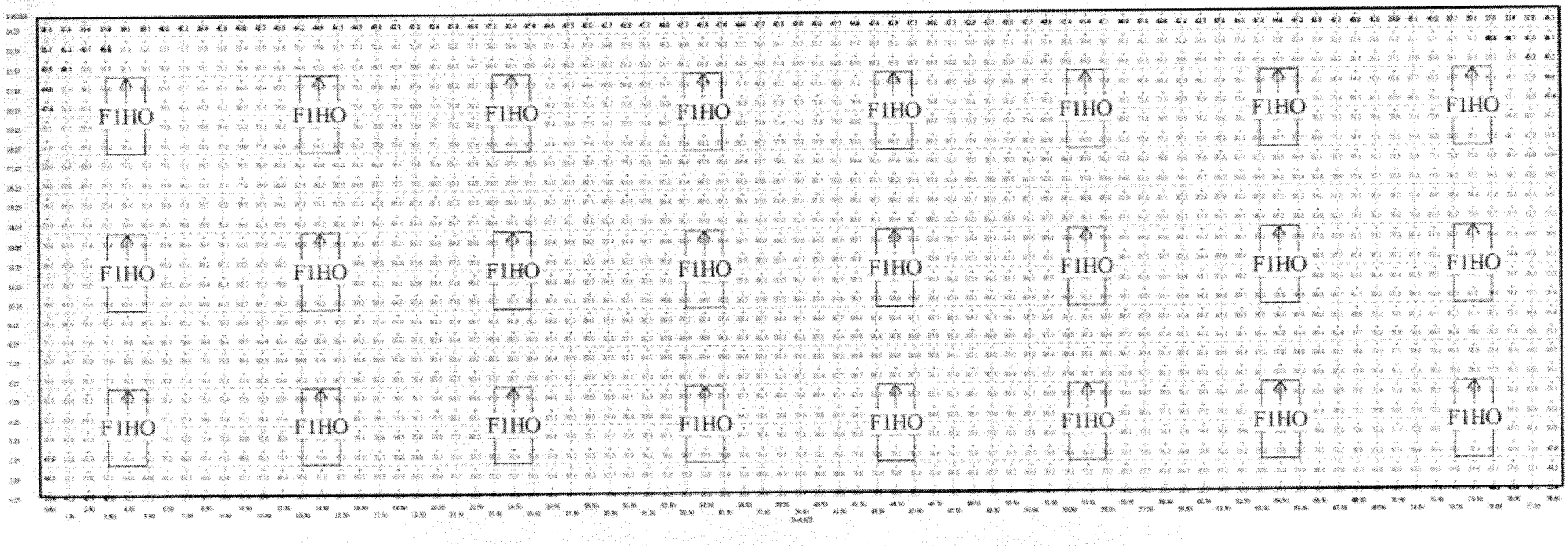
PROJECT: Jackson Barracks/1474 GROUP: Fourth Floor AREA: Opn Off 79X24.5 GRID: hghi2.5
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 2.5
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	28.27	94.78	75.09	2.66	3.35

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F1HO	24	F1HO	LITHONIA LIGHTI, , [TEST]LTL13008 [DATE]JUNE 1, 2, 54T5HO [LUMINAIRE]VOLUMETRIC R LAMPS: (2) F54W/835, 4450 LUMENS, BLST: , LLF = 0.86 @10.00



LitePro 2.017 Point-By-Point Results 4/21/2006

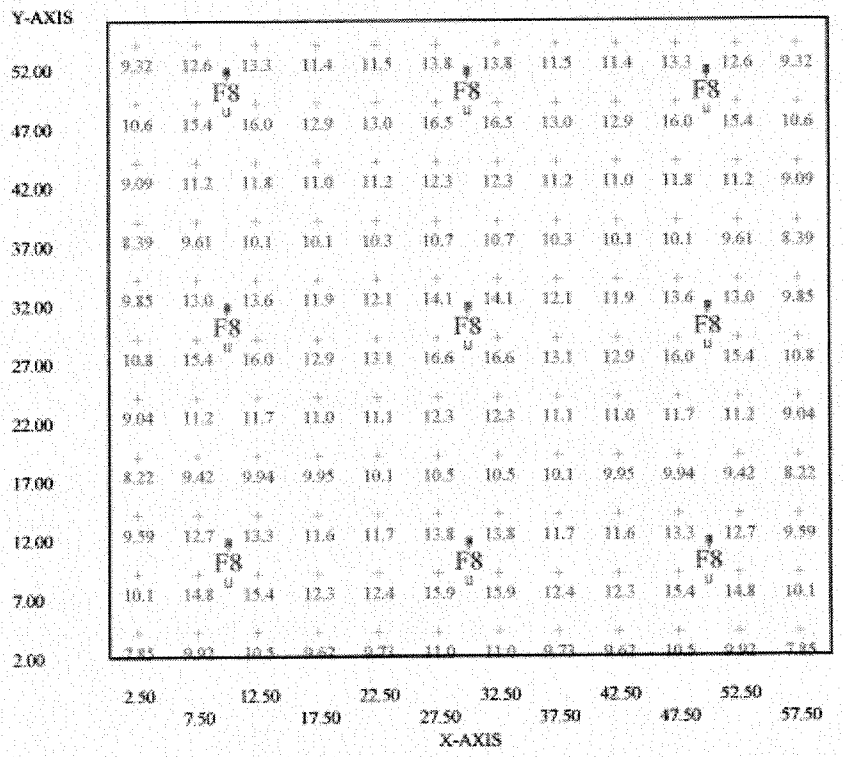
PROJECT: Jackson Barracks/1474 GROUP: Fourth Floor AREA: ATTIC 60X54 GRID: HGHI
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 16.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20 (Ceiling/Walls/Floor)
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	7.85	16.56	11.80	1.50	2.11

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F8	9	F8	LITHONIA LIGHTI, , [TEST] LTL5739 [MANUFAC] LITHO, HEAVY DUTY STRIPLIGHT 5" X 4' LAMPS: (2) , 2900 LUMENS, BLST: , LLF = 0.86 @9.50



TYPICAL ATTIC SPACING (20'x20')

LitePro 2.017 Point-By-Point Results 4/23/2006

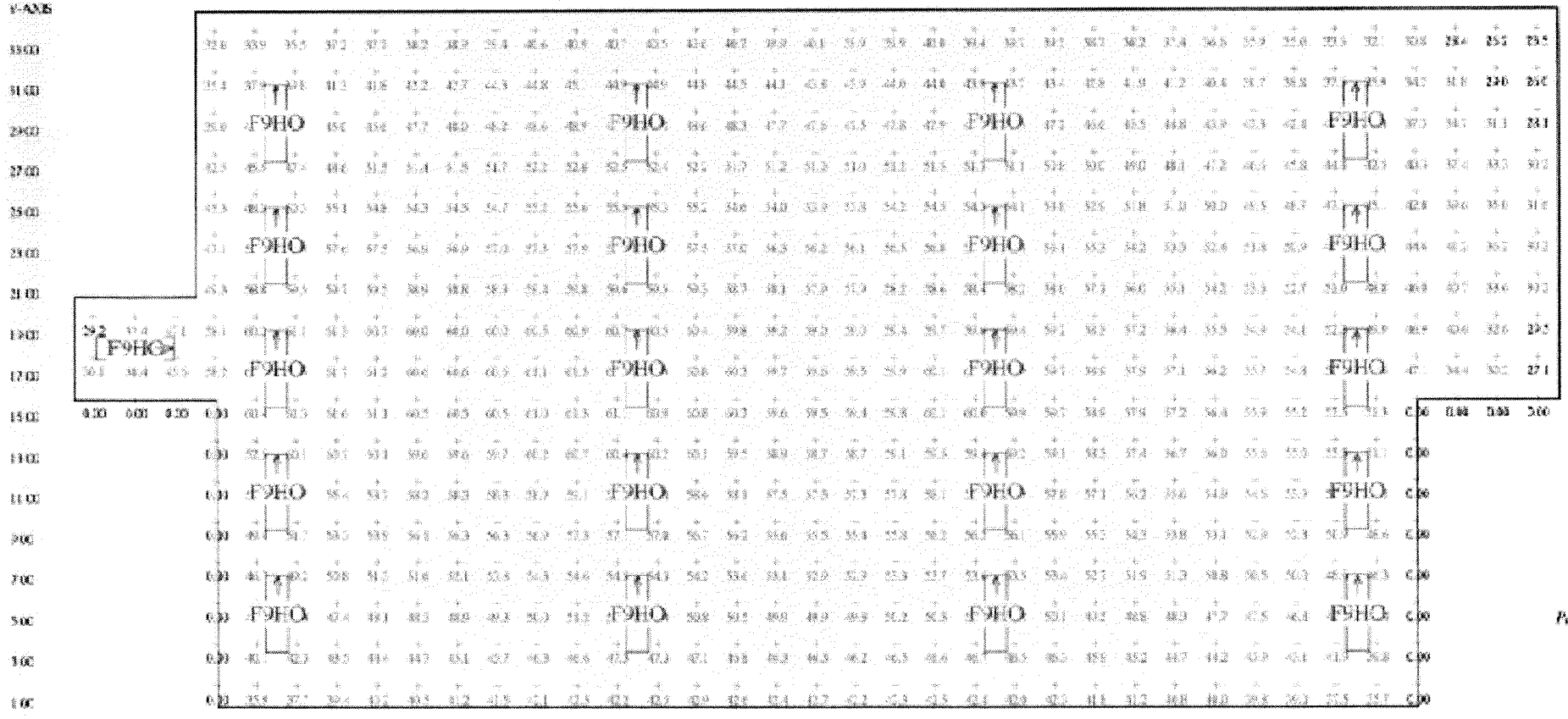
PROJECT: Jackson Barracks/1474 GROUP: CENTRAL PLANT AREA: CENTRAL PLANT GRID: HGH1
PREPARED BY:
VALUES ARE FC, SCALE: 1 IN= 8.0FT, HORZ GRID (U), HORZ CALC, Z= 0.0
ROOM REFLECTANCES: 80 / 50 / 20
Computed in accordance with IES recommendations

Statistics

GROUP	MIN	MAX	AVE	AVE/MIN	MAX/MIN
(+)	0.00	61.68	48.17	N/A	N/A

Luminaires Used

TYPE	QTY	TEST#	DESCRIPTION
F9HO	21	F9HO	LITHONIA LIGHTI, , [TEST] LTL9791 [MANUFAC] LITHO, HEAVY DUTY INDUSTRIAL, NOM. 13 LAMPS: (2) FP54T5/835/HO, 4450 LUMENS, BLST: , LLF = 0.86 @15.00



Q-2 Electrical Load Calculations

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: MDB
DATE: 4/22/2006
VOLTAGE: 480Y/277
PHASE: 3

TOTAL CONNECTED LOAD (VA): 1619261
TOTAL CONNECTED LOAD (A): 1948
TOTAL CALCULATED LOAD (VA): 1619261
TOTAL CALCULATED LOAD (A): 1948

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	0	1.00	0	0
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	HD3	N	N	377636	1.00	377636	377636
1	4	HL2	N	N	272500	1.00	272500	272500
1	5	XFMR (LD2)	N	N	81460	1.00	81460	81460
1	6	ATS	N	N	733603.25	1.00	733603.25	733603.25
1	7	HD-MECH	N	N	154061.25	1.00	154061.25	154061.25
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS — **141 READINESS CENTER**

PANEL: HD-MECH
DATE: 4/21/2006

VOLTAGE: 480Y/277

PHASE: 3

TOTAL CONNECTED LOAD (VA): 118053
TOTAL CONNECTED LOAD (A): 142

TOTAL CALCULATED LOAD (VA): 154061

TOTAL CALCULATED LOAD (A): 185

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	0	1.00	0	0
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	MOTOR	Y	N	97269	1.00	97269	121586.25
1	4	LARGEST MOTOR	Y	Y	20784	1.00	20784	32475
1	5	0			0	1.00	0	0
1	6	0			0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: HD-3
DATE: 4/21/2006
VOLTAGE: 480Y/277
PHASE: 3

TOTAL CONNECTED LOAD (VA): 370154
TOTAL CONNECTED LOAD (A): 445
TOTAL CALCULATED LOAD (VA): 377636
TOTAL CALCULATED LOAD (A): 454

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	0	1.00	0	0
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	MOTOR	N	N	22446	1.00	22446	22446
1	4	LARGEST MOTOR	N	Y	29928	1.00	29928	37410
1	5	SUB PANEL	N	N	317780	1.00	317780	317780
1	6	0			0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: HL2
DATE: 4/21/2006

VOLTAGE: 480Y/277

PHASE: 3

TOTAL CONNECTED LOAD (VA): 254400
TOTAL CONNECTED LOAD (A): 306

TOTAL CALCULATED LOAD (VA): 272500

TOTAL CALCULATED LOAD (A): 328

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	72400	1.00	72400	90500
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	VAV	N	N	76000	1.00	76000	76000
1	4	0			0	1.00	0	0
1	5	0			0	1.00	0	0
1	6	0			0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0
2	3	VAV	N	N	106000	1.00	106000	106000
2	4	0			0	1.00	0	0
2	5	0			0	1.00	0	0
2	6	0			0	1.00	0	0
2	7	0			0	1.00	0	0
2	8	0			0	1.00	0	0
2	9	0			0	1.00	0	0
2	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: HL-3
DATE: 4/21/2006

VOLTAGE: 480Y/277

PHASE: 3

TOTAL CONNECTED LOAD (VA): 213500
TOTAL CONNECTED LOAD (A): 257

TOTAL CALCULATED LOAD (VA): 222625

TOTAL CALCULATED LOAD (A): 268

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	36500	1.00	36500	45625
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	VAV	N	N	0	1.00	0	0
1	4	0			0	1.00	0	0
1	5	0			0	1.00	0	0
1	6	0			0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0
2	3	VAV	N	N	177000	1.00	177000	177000
2	4	0			0	1.00	0	0
2	5	0			0	1.00	0	0
2	6	0			0	1.00	0	0
2	7	0			0	1.00	0	0
2	8	0			0	1.00	0	0
2	9	0			0	1.00	0	0
2	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: LD2
DATE: 4/21/2006

VOLTAGE: 208Y/120

PHASE: 3

TOTAL CONNECTED LOAD (VA): 81460
TOTAL CONNECTED LOAD (A): 226

TOTAL CALCULATED LOAD (VA): 81460

TOTAL CALCULATED LOAD (A): 226

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	0	1.00	0	0
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	LL1	N	N	50710	1.00	50710	50710
1	4	LL2	N	N	30750	1.00	30750	30750
1	5	0			0	1.00	0	0
1	6	CONT LOAD	Y	N	0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS — **141 READINESS CENTER**

PANEL: LL1
DATE: 4/21/2006
VOLTAGE: 208Y/120
PHASE: 3

TOTAL CONNECTED LOAD (VA): 70720
TOTAL CONNECTED LOAD (A): 196
TOTAL CALCULATED LOAD (VA): 50710
TOTAL CALCULATED LOAD (A): 141

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	0	1.00	0	0
ALL	2	RECEPTACLES (<=10KVA)	N	N	10000	1.00	10000	10000
ALL	2	RECEPTACLES (>10KVA)	N	N	33720	0.50	16860	16860
1	3	REF / APPL			9000	0.65	5850	5850
1	4	0			0	1.00	0	0
1	5	PROJ / MTRZD SCRN	N	N	12000	1.00	12000	12000
1	6	CONT LOAD	Y	N	0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0
2	3	0			0	1.00	0	0
2	4	0			0	1.00	0	0
2	5	PROJ / MTRZD SCRN	N	N	6000	1.00	6000	6000
2	6	0			0	1.00	0	0
2	7	0			0	1.00	0	0
2	8	0			0	1.00	0	0
2	9	0			0	1.00	0	0
2	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: LL2
DATE: 4/21/2006

VOLTAGE: 208Y/120

PHASE: 3

TOTAL CONNECTED LOAD (VA): 50000
TOTAL CONNECTED LOAD (A): 139

TOTAL CALCULATED LOAD (VA): 30750

TOTAL CALCULATED LOAD (A): 85

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	1000	1.00	1000	1250
ALL	2	RECEPTACLES (<=10KVA)	N	N	10000	1.00	10000	10000
ALL	2	RECEPTACLES (>10KVA)	N	N	39000	0.50	19500	19500
1	3	0			0	1.00	0	0
1	4	0			0	1.00	0	0
1	5	0			0	1.00	0	0
1	6	CONT. LOAD	Y	N	0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0
2	3	0			0	1.00	0	0
2	4	0			0	1.00	0	0
2	5	0			0	1.00	0	0
2	6	0			0	1.00	0	0
2	7	0			0	1.00	0	0
2	8	0			0	1.00	0	0
2	9	0			0	1.00	0	0
2	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: LL3A
DATE: 4/21/2006

VOLTAGE: 208Y/120

PHASE: 3

TOTAL CONNECTED LOAD (VA): 77080
TOTAL CONNECTED LOAD (A): 214

TOTAL CALCULATED LOAD (VA): 47515

TOTAL CALCULATED LOAD (A): 132

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	1000	1.00	1000	1250
ALL	2	RECEPTACLES (<=10KVA)	N	N	10000	1.00	10000	10000
ALL	2	RECEPTACLES (>10KVA)	N	N	48080	0.50	24040	24040
1	3	REF / APPL	N	N	6000	0.65	3900	3900
1	4	REPRO	N	N	4500	0.65	2925	2925
1	5	0			0	1.00	0	0
1	6	CONT. LOAD	Y	N	0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0
2	3	REF / APPL	N	N	6000	0.65	3900	3900
2	4	REPRO	N	N	1500	1.00	1500	1500
2	5	0			0	1.00	0	0
2	6	CONT. LOAD	Y	N	0	1.00	0	0
2	7	0			0	1.00	0	0
2	8	0			0	1.00	0	0
2	9	0			0	1.00	0	0
2	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: LL3B
DATE: 4/21/2006

VOLTAGE: 208Y/120

PHASE: 3

TOTAL CONNECTED LOAD (VA): 76880
TOTAL CONNECTED LOAD (A): 213

TOTAL CALCULATED LOAD (VA): 47640

TOTAL CALCULATED LOAD (A): 132

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	1000	1.00	1000	1250
ALL	2	RECEPTACLES (<=10KVA)	N	N	10000	1.00	10000	10000
ALL	2	RECEPTACLES (>10KVA)	N	N	46380	0.50	23190	23190
1	3	REF / APPL	N		6000	0.65	3900	3900
1	4	REPRO	N		4500	0.65	2925	2925
1	5	0			0	1.00	0	0
1	6	CONT. LOAD	Y		0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0
2	3	REF / APPL	N		7500	0.65	4875	4875
2	4	REPRO	N		1500	1.00	1500	1500
2	5	0			0	1.00	0	0
2	6	CONT. LOAD	Y		0	1.00	0	0
2	7	0			0	1.00	0	0
2	8	0			0	1.00	0	0
2	9	0			0	1.00	0	0
2	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **1474**

PANEL: EHDP
DATE: 4/22/2006
VOLTAGE: 480Y/277
PHASE: 3

TOTAL CONNECTED LOAD (VA): 684968
TOTAL CONNECTED LOAD (A): 824
TOTAL CALCULATED LOAD (VA): 733603
TOTAL CALCULATED LOAD (A): 882

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	0	1.00	0	0
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	CU	Y	N	74823	1.00	74823	93528.75
1	4	ELEV	N	N	86400	1.00	86400	86400
1	5	SUB PANEL	N	N	464219	1.00	464219	464219
1	6	DWP	N	N	6318	1.00	6318	6318
1	7	ERV	Y	Y	53208	1.00	53208	83137.5
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **1474**

PANEL: EHD4
DATE: 4/22/2006
VOLTAGE: 480Y/277
PHASE: 3

TOTAL CONNECTED LOAD (VA): 360459
TOTAL CONNECTED LOAD (A): 434
TOTAL CALCULATED LOAD (VA): 360459
TOTAL CALCULATED LOAD (A): 434

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	0	1.00	0	0
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	MOTOR	N	N	20784	1.00	20784	20784
1	4	ELEV?	N	N	43200	1.00	43200	43200
1	5	SUB PANEL	N	N	226635	1.00	226635	226635
1	6	ATRIUM EX FAN	N	N	69840	1.00	69840	69840
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **1474**

PANEL: EHD-ELEV
DATE: 4/21/2006

VOLTAGE: 480Y/277

PHASE: 3

TOTAL CONNECTED LOAD (VA): 86400
TOTAL CONNECTED LOAD (A): 104

TOTAL CALCULATED LOAD (VA): 97200

TOTAL CALCULATED LOAD (A): 117

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	0	1.00	0	0
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	PASS ELEV (HP?)	N	Y	43200	1.00	43200	54000
1	4	EQUIP LIFT (HP?)	N	N	43200	1.00	43200	43200
1	5	0			0	1.00	0	0
1	6	0			0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: EHL2
DATE: 4/21/2006

VOLTAGE: 480Y/277

PHASE: 3

TOTAL CONNECTED LOAD (VA): 31260
TOTAL CONNECTED LOAD (A): 38

TOTAL CALCULATED LOAD (VA): 39075

TOTAL CALCULATED LOAD (A): 47

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	31260	1.00	31260	39075
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	VAV	N	N	0	1.00	0	0
1	4	0			0	1.00	0	0
1	5	0			0	1.00	0	0
1	6	0			0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS

PANEL: EHL3
DATE: 4/21/2006

VOLTAGE: 480Y/277

PHASE: 3

141 READINESS CENTER

TOTAL CONNECTED LOAD (VA): 7500
TOTAL CONNECTED LOAD (A): 9

TOTAL CALCULATED LOAD (VA): 9375

TOTAL CALCULATED LOAD (A): 11

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	7500	1.00	7500	9375
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	VAV	N	N	0	1.00	0	0
1	4	0			0	1.00	0	0
1	5	0			0	1.00	0	0
1	6	0			0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: EHL-4
DATE: 4/22/2006
VOLTAGE: 480Y/277
PHASE: 3

TOTAL CONNECTED LOAD (VA): 175000
TOTAL CONNECTED LOAD (A): 210
TOTAL CALCULATED LOAD (VA): 180350
TOTAL CALCULATED LOAD (A): 217

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	21400	1.00	21400	26750
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	VAV	N	N	64000	1.00	64000	64000
1	4	0			0	1.00	0	0
1	5	0			0	1.00	0	0
1	6	0			0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0
2	3	ELEC HEAT	N	N	89600	1.00	89600	89600
2	4	0			0	1.00	0	0
2	5	0			0	1.00	0	0
2	6	0			0	1.00	0	0
2	7	0			0	1.00	0	0
2	8	0			0	1.00	0	0
2	9	0			0	1.00	0	0
2	10	0			0	1.00	0	0
3	3	0			0	1.00	0	0
3	4	0			0	1.00	0	0
3	5	0			0	1.00	0	0
3	6	0			0	1.00	0	0
3	7	0			0	1.00	0	0
3	8	0			0	1.00	0	0
3	9	0			0	1.00	0	0
3	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: ELD2
DATE: 4/21/2006

VOLTAGE: 208Y/120

PHASE: 3

TOTAL CONNECTED LOAD (VA): 54410
TOTAL CONNECTED LOAD (A): 151

TOTAL CALCULATED LOAD (VA): 54410
TOTAL CALCULATED LOAD (A): 151

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	0	1.00	0	0
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	ELL2	N	N	44630	1.00	44630	44630
1	4	ELL3	N	N	9780	1.00	9780	9780
1	5	0			0	1.00	0	0
1	6	CONT LOAD	Y	N	0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS — **141 READINESS CENTER**

PANEL: ELL2
DATE: 4/21/2006

VOLTAGE: 208Y/120

PHASE: 3

TOTAL CONNECTED LOAD (VA): 65460
TOTAL CONNECTED LOAD (A): 182

TOTAL CALCULATED LOAD (VA): 45080

TOTAL CALCULATED LOAD (A): 125

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	0	1.00	0	0
ALL	2	RECEPTACLES (<=10KVA)	N	N	10000	1.00	10000	10000
ALL	2	RECEPTACLES (>10KVA)	N	N	41660	0.50	20830	20830
1	3	0			0	1.00	0	0
1	4	AUTO DOORS	N	N	3000	1.00	3000	3000
1	5	PROJ / MTRZ SCRN	N	N	6000	1.00	6000	6000
1	6	CONT LOAD	Y	N	0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0
2	3	0			0	1.00	0	0
2	4	0			0	1.00	0	0
2	5	MTRZD SHUTTER	N	N	3000	1.00	3000	3000
2	6	CONT LOAD	Y	N	1800	1.00	1800	2250
2	7	0			0	1.00	0	0
2	8	0			0	1.00	0	0
2	9	0			0	1.00	0	0
2	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS — **141 READINESS CENTER**

PANEL: ELL3
DATE: 4/21/2006

VOLTAGE: 208Y/120

PHASE: 3

TOTAL CONNECTED LOAD (VA): 9780
TOTAL CONNECTED LOAD (A): 27

TOTAL CALCULATED LOAD (VA): 10230

TOTAL CALCULATED LOAD (A): 28

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	0	1.00	0	0
ALL	2	RECEPTACLES (<=10KVA)	N	N	7980	1.00	7980	7980
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	0			0	1.00	0	0
1	4	0			0	1.00	0	0
1	5	0			0	1.00	0	0
1	6	CONT LOAD	Y	N	1800	1.00	1800	2250
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: ELL4
DATE: 4/21/2006

VOLTAGE: 208Y/120

PHASE: 3

TOTAL CONNECTED LOAD (VA): 70420
TOTAL CONNECTED LOAD (A): 195

TOTAL CALCULATED LOAD (VA): 46285

TOTAL CALCULATED LOAD (A): 128

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	1000	1.00	1000	1250
ALL	2	RECEPTACLES (<=10KVA)	N	N	10000	1.00	10000	10000
ALL	2	RECEPTACLES (>10KVA)	N	N	43620	0.50	21810	21810
1	3	REF / APPL	N	N	1500	1.00	1500	1500
1	4	REPRO	N	N	3000	1.00	3000	3000
1	5	0			0	1.00	0	0
1	6	CONTIN LOAD	Y	N	1800	1.00	1800	2250
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0
2	3	REF / APPL	N	N	9000	0.65	5850	5850
2	4	REPRO	N	N	0	1.00	0	0
2	5	0			0	1.00	0	0
2	6	CONTIN LOAD	Y	N	500	1.00	500	625
2	7	0			0	1.00	0	0
2	8	0			0	1.00	0	0
2	9	0			0	1.00	0	0
2	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: MDBCP
DATE: 4/21/2006

VOLTAGE: 480Y/277

PHASE: 3

TOTAL CONNECTED LOAD (VA): 1788418
TOTAL CONNECTED LOAD (A): 2151

TOTAL CALCULATED LOAD (VA): 1869478

TOTAL CALCULATED LOAD (A): 2249

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	0	1.00	0	0
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	0	N	N	0	1.00	0	0
1	4	CHILLER	N	N	972720	1.00	972720	972720
1	5	CHILLER (LGST)	N	Y	324240	1.00	324240	405300
1	6	PUMP	N	N	287652	1.00	287652	287652
1	7	CT	N	N	121800	1.00	121800	121800
1	8	SUB PANEL	N	N	42100	1.00	42100	42100
1	9	PUMP	N	N	39906	1.00	39906	39906

LOAD SUMMARY

JACKSON BARRACKS

PANEL: HLCP
DATE: 4/21/2006

VOLTAGE: 480Y/277

PHASE: 3

141 READINESS CENTER

TOTAL CONNECTED LOAD (VA):	14800
TOTAL CONNECTED LOAD (A):	18
TOTAL CALCULATED LOAD (VA):	16300
TOTAL CALCULATED LOAD (A):	20

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	6000	1.00	6000	7500
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	SUB PANEL	N	N	8800	1.00	8800	8800
1	4	0			0	1.00	0	0
1	5	0			0	1.00	0	0
1	6	0			0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0
2	3	0			0	1.00	0	0
2	4	0			0	1.00	0	0
2	5	0			0	1.00	0	0
2	6	0			0	1.00	0	0
2	7	0			0	1.00	0	0
2	8	0			0	1.00	0	0
2	9	0			0	1.00	0	0
2	10	0			0	1.00	0	0
3	3	0			0	1.00	0	0
3	4	0			0	1.00	0	0
3	5	0			0	1.00	0	0
3	6	0			0	1.00	0	0
3	7	0			0	1.00	0	0
3	8	0			0	1.00	0	0
3	9	0			0	1.00	0	0
3	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: LLCP
DATE: 4/21/2006

VOLTAGE: 208Y/120

PHASE: 3

TOTAL CONNECTED LOAD (VA): 8800
TOTAL CONNECTED LOAD (A): 24

TOTAL CALCULATED LOAD (VA): 9300

TOTAL CALCULATED LOAD (A): 26

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	0	1.00	0	0
ALL	2	RECEPTACLES (<=10KVA)	N	N	6800	1.00	6800	6800
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	FCU	Y	N	2000	1.00	2000	2500
1	4	0			0	1.00	0	0
1	5	0			0	1.00	0	0
1	6	CONT LOAD	Y	N	0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: EHLCP
DATE: 4/21/2006

VOLTAGE: 480Y/277

PHASE: 3

TOTAL CONNECTED LOAD (VA): 30900
TOTAL CONNECTED LOAD (A): 37

TOTAL CALCULATED LOAD (VA): 20200

TOTAL CALCULATED LOAD (A): 24

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	2000	1.00	2000	2500
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	SUB PANEL	N	N	6500	1.00	6500	6500
1	4	ELEC HEAT	N	N	22400	0.50	11200	11200
1	5	0			0	1.00	0	0
1	6	0			0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0

LOAD SUMMARY

JACKSON BARRACKS **141 READINESS CENTER**

PANEL: ELLCP
DATE: 4/21/2006

VOLTAGE: 208Y/120

PHASE: 3

TOTAL CONNECTED LOAD (VA): 6500
TOTAL CONNECTED LOAD (A): 18

TOTAL CALCULATED LOAD (VA): 7000

TOTAL CALCULATED LOAD (A): 19

SECTION	LOAD	DESCRIPTION	CONTINUOUS (Y/N)	LARGEST MOTOR LOAD (Y/N)	CONNECTED LOAD	DIVERSITY	DEMAND	CALCULATED VA
ALL	1	LIGHTING	Y	N	0	1.00	0	0
ALL	2	RECEPTACLES (<=10KVA)	N	N	0	1.00	0	0
ALL	2	RECEPTACLES (>10KVA)	N	N	0	0.50	0	0
1	3	EX FAN	Y	N	2000	1.00	2000	2500
1	4	ELEC HEAT	N	N	4500	1.00	4500	4500
1	5	0			0	1.00	0	0
1	6	CONT LOAD	Y	N	0	1.00	0	0
1	7	0			0	1.00	0	0
1	8	0			0	1.00	0	0
1	9	0			0	1.00	0	0
1	10	0			0	1.00	0	0

Q-3 Generator Calculations

Cummins Power

Recommended Generator Report - 1500DFLE
for Project 1474 - Jackson Barracks

Project Parameters				
Generator Sets Running in Parallel:	1		Fuel:	Diesel
Max Allowable Starting Voltage Dip:	35 %		Phase:	3
Max Allowable Peak Voltage Dip:	35 %		Frequency, Hz:	60
Max Allowable Frequency Dip:	10 %		Voltage:	277/480, Series Wye
Site Altitude, Ft. (M):	20	(6)	Quiet Site:	No
Site Ambient Temperature, °F (°C):	97	(36)	Duty:	Standby

Calculated Individual Generator Set Load Running and Peak Requirements						
Running kW:	1253.7	Max Step kW:	602.6	In Step 1	Cumulative Step kW:	1455.4
Running kVA:	1410.1	Max Step kVA:	723.7	In Step 1	Cumulative Step kVA:	1865.4
Running PF:	0.89	Peak kW:	1035.2		Cumulative Peak kW:	1713.4
Alternator kW:	1431.1	Peak kVA:	1940.4		Cumulative Peak kVA:	2725.5

Generator Set Configuration			
Engine Model:	KTA50-G9 Nonroad 1	Alternator:	HC7G
Fuel:	Diesel	Feature Code:	B289
Engine Displacement, cu in (liters):	3067 (50)	**Reconnectable**	
Engine Cylinders:	16		
Excitation:	PMG	Voltage Range:	BRHY 416-480
Temp. Rise at Full Rated Load, °C:	105[2]	Number Leads:	6

Set Performance		**Load Requirements**	
Running at:	83.6% Rated Capacity		
Starting Voltage Dip:	9 %	Max Starting Voltage Dip:	35 %
Peak Voltage Dip:	23 %	Max Peak Voltage Dip:	35 %
Frequency Dip:	4 %	Max Frequency Dip:	10 %
Site Rated kW:	1500	Running kW:	1253.7
Site Rated Alternator Max kW at 105°C and 480 volts:	1680	Alternator kW:	1431.1
Site Rated Alternator Max kVA at 105°C and 480 volts:	2100	Running kVA:	1410.1
Site Rated Max SkW:	1540.00	Effective Surge kW:	1387.9
Max SkVA:	6716	Effective Surge kVA:	2725.5

[2]Note: Higher temperature rise at full rated load.

Cummins Power Generation

Steps and Dips Detail Report
for Project

Project Parameters					
Generator Sets Running in Parallel:		1	Fuel:		Diesel
Max Allowable Starting Voltage Dip:		35 %	Phase:		3
Max Allowable Peak Voltage Dip:		35 %	Frequency, Hz:		60
Max Allowable Frequency Dip:		10 %	Voltage:		277/480, Series Wye
Site Altitude, Ft. (M):	20	(6)	Quiet Site:		No
Site Ambient Temperature, °F (°C):	97	(36)	Duty:		Standby

Calculated Individual Generator Set Load Running and Peak Requirements							
Running kW:	1254	Max Step kW:	603	In Step 1	Cumulative Step kW:		1455
Running kVA:	1410	Max Step kVA:	724	In Step 1	Cumulative Step kVA:		1865
Running PF:	0.89	Peak kW:	1035		Cumulative Peak kW:		1713
Alternator kW:	1431	Peak kVA:	1940		Cumulative Peak kVA:		2725

Generator Set Configuration			
Model:	1500DFLE	Alternator:	HC7G
Engine Model:	KTA50-G9 Nonroad 1	Excitation:	PMG
Fuel:	Diesel	Feature Code:	B289

Frequency Dip:	4	Max Frequency Dip:	10
Starting Voltage Dip:	9	Max Starting Voltage Dip:	35
Peak Voltage Dip:	23	Max Peak Voltage Dip:	35

Step	Step Frequency Dip (%)	Step Voltage Dip (%)
1	1	9
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11	1	1
12	1	3
13	1	3
14	1	3
15	1	3
16	1	2
17	1	2
18	1	4
19	1	4
20	0	0

Cummins Power Generation

Loads and Steps Detail Report
for Project 1474 - Jackson Barracks

Project Parameters					
Generator Sets Running in Parallel:		1	Fuel:		Diesel
Max Allowable Starting Voltage Dip:		35 %	Phase:		3
Max Allowable Peak Voltage Dip:		35 %	Frequency, Hz:		60
Max Allowable Frequency Dip:		10 %	Voltage:		277/480, Series Wye
Site Altitude, Ft. (M):	20	(6)	Quiet Site:		No
Site Ambient Temperature, °F (°C):	97	(36)	Duty:		Standby

Calculated Individual Generator Set Load Running and Peak Requirements						
Running kW:	1253.7	Max Step kW:	602.6	In Step 1	Cumulative Step kW:	1455.4
Running kVA:	1410.1	Max Step kVA:	723.7	In Step 1	Cumulative Step kVA:	1865.4
Running PF:	0.89	Peak kW:	1035.2		Cumulative Peak kW:	1713.4
Alternator kW:	1431.1	Peak kVA:	1940.4		Cumulative Peak kVA:	2725.5

Step 1

Calculated Individual Generator Set Step Load Requirements

Running kW:	602.6	Starting kW:	602.6	Cumulative Step kW:	602.6
Running kVA:	723.7	Starting kVA:	723.7	Cumulative Step kVA:	723.7
Running Amps:	871.5				
Alternator kW:	735.3				

141 EMER LIGHTING — Three Phase — Quantity: 1 In this Step

Category:	Light - Fluorescent				
Running kW:	75.0	Starting kW:	75.0	Peak kW:	None
Running kVA:	79.0	Starting kVA:	78.9	Peak kVA:	None
Running PF:	0.95	Starting PF:	0.95	Cyclic:	No
Running Amps:	95.1				
Alternator kW:	75.0			Voltage:	480

141 EMERGENCY RECEP / LOW VOLTAGE LOADS — Three Phase — Quantity: 1 In this Step

Category:	Miscellaneous - User Defined				
Running kW:	160.0	Starting kW:	160.0	Peak kW:	None
Running kVA:	200.0	Starting kVA:	200.0	Peak kVA:	None
Running PF:	0.80	Starting PF:	0.80	Cyclic:	No
Running Amps:	555.8				
Alternator kW:	160.0			Voltage:	208

61 LIGHTING LOAD (EST) — Three Phase — Quantity: 1 In this Step

Category:	Light - Fluorescent				
Running kW:	75.0	Starting kW:	75.0	Peak kW:	None
Running kVA:	79.0	Starting kVA:	78.9	Peak kVA:	None
Running PF:	0.95	Starting PF:	0.95	Cyclic:	No
Running Amps:	95.1				
Alternator kW:	75.0			Voltage:	480

61 EMERGENCY RECEP / LOW VOLTAGE LOADS (EST) — Three Phase — Quantity: 1 In this Step

Category:	Miscellaneous - User Defined				
Running kW:	160.0	Starting kW:	160.0	Peak kW:	None
Running kVA:	200.0	Starting kVA:	200.0	Peak kVA:	None
Running PF:	0.80	Starting PF:	0.80	Cyclic:	No
Running Amps:	555.8				
Alternator kW:	160.0			Voltage:	208

141 PASS ELEV (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	33.2	Starting kW:	33.2	Peak kW:	33.2
Running kVA:	41.5	Starting kVA:	41.5	Peak kVA:	41.5
Running PF:	0.80	Starting PF:	0.80	Cyclic:	Yes
Running Amps:	49.9				
Alternator kW:	66.3			Voltage:	480

Shaft HP:	40.00	Type:	Variable Frequency Drive
Shaft kW:	29.84	Drive Type:	DC Drive

61 PASS ELEV (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	33.2	Starting kW:	33.2	Peak kW:	33.2
Running kVA:	41.5	Starting kVA:	41.5	Peak kVA:	41.5
Running PF:	0.80	Starting PF:	0.80	Cyclic:	Yes
Running Amps:	49.9				
Alternator kW:	66.3			Voltage:	480

Shaft HP:	40.00	Type:	Variable Frequency Drive
Shaft kW:	29.84	Drive Type:	DC Drive

141 EQUIPMENT LIFT (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	33.2	Starting kW:	33.2	Peak kW:	33.2
Running kVA:	41.5	Starting kVA:	41.5	Peak kVA:	41.5
Running PF:	0.80	Starting PF:	0.80	Cyclic:	Yes
Running Amps:	49.9				
Alternator kW:	66.3			Voltage:	480

Shaft HP:	40.00	Type:	Variable Frequency Drive
Shaft kW:	29.84	Drive Type:	DC Drive

61 EQUIP LIFT? (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	33.2	Starting kW:	33.2	Peak kW:	33.2
Running kVA:	41.5	Starting kVA:	41.5	Peak kVA:	41.5
Running PF:	0.80	Starting PF:	0.80	Cyclic:	Yes
Running Amps:	49.9				
Alternator kW:	66.3			Voltage:	480

Shaft HP:	40.00	Type:	Variable Frequency Drive
Shaft kW:	29.84	Drive Type:	DC Drive

Step 2

Calculated Individual Generator Set Step Load Requirements

Running kW:	4.1	Starting kW:	29.0	Cumulative Step kW:	631.6
Running kVA:	4.9	Starting kVA:	47.5	Cumulative Step kVA:	771.2
Running Amps:	5.9				
Alternator kW:	4.1				

141 DWP Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	4.1	Starting kW:	29.0	Peak kW:	29.0
Running kVA:	4.9	Starting kVA:	47.5	Peak kVA:	47.5
Running PF:	0.85	Starting PF:	0.61	Cyclic:	Yes
Running Amps:	5.9				
Alternator kW:	4.1			Voltage:	480

Shaft HP:	5.00	Method:	Across The Line
Shaft kW:	3.73		
Efficiency:	0.9	LRkVA Factor:	9.5
Design:	High Efficiency NEMA Design B	LRkVA Code:	L

Step 3

Calculated Individual Generator Set Step Load Requirements

Running kW:	4.1	Starting kW:	29.0	Cumulative Step kW:	635.8
Running kVA:	4.9	Starting kVA:	47.5	Cumulative Step kVA:	776.1
Running Amps:	5.9				
Alternator kW:	4.1				

61 DWP? (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	4.1	Starting kW:	29.0	Peak kW:	29.0
Running kVA:	4.9	Starting kVA:	47.5	Peak kVA:	47.5
Running PF:	0.85	Starting PF:	0.61	Cyclic:	Yes
Running Amps:	5.9				
Alternator kW:	4.1			Voltage:	480

Shaft HP:	5.00	Method:	Across The Line
Shaft kW:	3.73		
Efficiency:	0.9	LRkVA Factor:	9.5
Design:	High Efficiency NEMA Design B	LRkVA Code:	L

Step 4

Calculated Individual Generator Set Step Load Requirements

Running kW:	20.7	Starting kW:	20.7	Cumulative Step kW:	631.6
Running kVA:	21.8	Starting kVA:	21.8	Cumulative Step kVA:	755.3
Running Amps:	26.3				
Alternator kW:	29.0				

141 ERV SUPPLY Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	20.7	Starting kW:	20.7	Peak kW:	None
Running kVA:	21.8	Starting kVA:	21.8	Peak kVA:	None
Running PF:	0.95	Starting PF:	0.95	Cyclic:	No
Running Amps:	26.3				

Alternator kW:	29.0	Voltage:	480
Shaft HP:	25.00	Type:	Variable Frequency Drive
Shaft kW:	18.65	Drive Type:	Pulse Width Modulated

Step 5

Calculated Individual Generator Set Step Load Requirements

Running kW:	20.7	Starting kW:	20.7	Cumulative Step kW:	652.4
Running kVA:	21.8	Starting kVA:	21.8	Cumulative Step kVA:	777.1
Running Amps:	26.3				
Alternator kW:	29.0				

141 ERV EXHAUST Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	20.7	Starting kW:	20.7	Peak kW:	None
Running kVA:	21.8	Starting kVA:	21.8	Peak kVA:	None
Running PF:	0.95	Starting PF:	0.95	Cyclic:	No
Running Amps:	26.3				
Alternator kW:	29.0			Voltage:	480

Shaft HP:	25.00	Type:	Variable Frequency Drive
Shaft kW:	18.65	Drive Type:	Pulse Width Modulated

Step 6

Calculated Individual Generator Set Step Load Requirements

Running kW:	20.7	Starting kW:	20.7	Cumulative Step kW:	673.1
Running kVA:	21.8	Starting kVA:	21.8	Cumulative Step kVA:	798.9
Running Amps:	26.3				
Alternator kW:	29.0				

61 ERV SUPPLY? (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	20.7	Starting kW:	20.7	Peak kW:	None
Running kVA:	21.8	Starting kVA:	21.8	Peak kVA:	None
Running PF:	0.95	Starting PF:	0.95	Cyclic:	No
Running Amps:	26.3				
Alternator kW:	29.0			Voltage:	480

Shaft HP:	25.00	Type:	Variable Frequency Drive
Shaft kW:	18.65	Drive Type:	Pulse Width Modulated

Step 7

Calculated Individual Generator Set Step Load Requirements

Running kW:	20.7	Starting kW:	20.7	Cumulative Step kW:	693.8
Running kVA:	21.8	Starting kVA:	21.8	Cumulative Step kVA:	820.7
Running Amps:	26.3				
Alternator kW:	29.0				

61 ERV EXHAUST? (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	20.7	Starting kW:	20.7	Peak kW:	None

Running kVA:	21.8	Starting kVA:	21.8	Peak kVA:	None
Running PF:	0.95	Starting PF:	0.95	Cyclic:	No
Running Amps:	26.3				
Alternator kW:	29.0			Voltage:	480

Shaft HP:	25.00	Type:	Variable Frequency Drive
Shaft kW:	18.65	Drive Type:	Pulse Width Modulated

Step 8

Calculated Individual Generator Set Step Load Requirements

Running kW:	6.2	Starting kW:	6.2	Cumulative Step kW:	700.0
Running kVA:	6.5	Starting kVA:	6.5	Cumulative Step kVA:	827.2
Running Amps:	7.9				
Alternator kW:	8.7				

141 AHU 4-1 Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	6.2	Starting kW:	6.2	Peak kW:	None
Running kVA:	6.5	Starting kVA:	6.5	Peak kVA:	None
Running PF:	0.95	Starting PF:	0.95	Cyclic:	No
Running Amps:	7.9				
Alternator kW:	8.7			Voltage:	480

Shaft HP:	7.50	Type:	Variable Frequency Drive
Shaft kW:	5.60	Drive Type:	Pulse Width Modulated

Step 9

Calculated Individual Generator Set Step Load Requirements

Running kW:	8.3	Starting kW:	8.3	Cumulative Step kW:	708.3
Running kVA:	8.7	Starting kVA:	8.7	Cumulative Step kVA:	836.0
Running Amps:	10.5				
Alternator kW:	11.6				

141 AHU 4-2 Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	8.3	Starting kW:	8.3	Peak kW:	None
Running kVA:	8.7	Starting kVA:	8.7	Peak kVA:	None
Running PF:	0.95	Starting PF:	0.95	Cyclic:	No
Running Amps:	10.5				
Alternator kW:	11.6			Voltage:	480

Shaft HP:	10.00	Type:	Variable Frequency Drive
Shaft kW:	7.46	Drive Type:	Pulse Width Modulated

Step 10

Calculated Individual Generator Set Step Load Requirements

Running kW:	6.2	Starting kW:	6.2	Cumulative Step kW:	714.5
Running kVA:	6.5	Starting kVA:	6.5	Cumulative Step kVA:	842.5
Running Amps:	7.9				
Alternator kW:	8.7				

61 AHU 1 ? (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	6.2	Starting kW:	6.2	Peak kW:	None
Running kVA:	6.5	Starting kVA:	6.5	Peak kVA:	None
Running PF:	0.95	Starting PF:	0.95	Cyclic:	No
Running Amps:	7.9				
Alternator kW:	8.7			Voltage:	480

Shaft HP:	7.50	Type:	Variable Frequency Drive
Shaft kW:	5.60	Drive Type:	Pulse Width Modulated

Step 11

Calculated Individual Generator Set Step Load Requirements

Running kW:	8.3	Starting kW:	8.3	Cumulative Step kW:	722.8
Running kVA:	8.7	Starting kVA:	8.7	Cumulative Step kVA:	851.2
Running Amps:	10.5				
Alternator kW:	11.6				

61 AHU 2 ? (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	8.3	Starting kW:	8.3	Peak kW:	None
Running kVA:	8.7	Starting kVA:	8.7	Peak kVA:	None
Running PF:	0.95	Starting PF:	0.95	Cyclic:	No
Running Amps:	10.5				
Alternator kW:	11.6			Voltage:	480

Shaft HP:	10.00	Type:	Variable Frequency Drive
Shaft kW:	7.46	Drive Type:	Pulse Width Modulated

Step 12

Calculated Individual Generator Set Step Load Requirements

Running kW:	32.1	Starting kW:	131.8	Cumulative Step kW:	854.6
Running kVA:	35.7	Starting kVA:	329.5	Cumulative Step kVA:	1180.8
Running Amps:	43.0				
Alternator kW:	32.1				

141 CU-1 Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	32.1	Starting kW:	131.8	Peak kW:	131.8
Running kVA:	35.7	Starting kVA:	329.5	Peak kVA:	329.5
Running PF:	0.90	Starting PF:	0.40	Cyclic:	Yes
Running Amps:	43.0				
Alternator kW:	32.1			Voltage:	480

Shaft HP:	38.77	Method:	Across The Line
Shaft kW:	28.92		
Efficiency:	0.94	LRkVA Factor:	8.5
Design:	High Efficiency NEMA Design B	LRkVA Code:	K

Step 13

Calculated Individual Generator Set Step Load Requirements

Running kW:	35.1	Starting kW:	140.5	Cumulative Step kW:	895.4
Running kVA:	39.0	Starting kVA:	360.2	Cumulative Step kVA:	1247.2
Running Amps:	47.0				
Alternator kW:	35.1				

141 CU-2 Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	35.1	Starting kW:	140.5	Peak kW:	140.5
Running kVA:	39.0	Starting kVA:	360.2	Peak kVA:	360.2
Running PF:	0.90	Starting PF:	0.39	Cyclic:	Yes
Running Amps:	47.0				
Alternator kW:	35.1			Voltage:	480

Shaft HP:	42.38	Method:	Across The Line
Shaft kW:	31.62		
Efficiency:	0.94	LRkVA Factor:	8.5
Design:	High Efficiency NEMA Design B	LRkVA Code:	K

Step 14

Calculated Individual Generator Set Step Load Requirements

Running kW:	32.1	Starting kW:	131.8	Cumulative Step kW:	921.9
Running kVA:	35.7	Starting kVA:	329.5	Cumulative Step kVA:	1255.5
Running Amps:	43.0				
Alternator kW:	32.1				

61 CU-1? (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	32.1	Starting kW:	131.8	Peak kW:	131.8
Running kVA:	35.7	Starting kVA:	329.5	Peak kVA:	329.5
Running PF:	0.90	Starting PF:	0.40	Cyclic:	Yes
Running Amps:	43.0				
Alternator kW:	32.1			Voltage:	480

Shaft HP:	38.77	Method:	Across The Line
Shaft kW:	28.92		
Efficiency:	0.94	LRkVA Factor:	8.5
Design:	High Efficiency NEMA Design B	LRkVA Code:	K

Step 15

Calculated Individual Generator Set Step Load Requirements

Running kW:	35.1	Starting kW:	140.5	Cumulative Step kW:	962.7
Running kVA:	39.0	Starting kVA:	360.2	Cumulative Step kVA:	1321.9
Running Amps:	47.0				
Alternator kW:	35.1				

61 CU-2? (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	35.1	Starting kW:	140.5	Peak kW:	140.5
Running kVA:	39.0	Starting kVA:	360.2	Peak kVA:	360.2
Running PF:	0.90	Starting PF:	0.39	Cyclic:	Yes
Running Amps:	47.0				
Alternator kW:	35.1			Voltage:	480

Shaft HP:	42.38	Method:	Across The Line
Shaft kW:	31.62		
Efficiency:	0.94	LRkVA Factor:	8.5
Design:	High Efficiency NEMA Design B	LRkVA Code:	K

Step 16

Calculated Individual Generator Set Step Load Requirements

Running kW:	150.0	Starting kW:	150.0	Cumulative Step kW:	1007.4
Running kVA:	150.0	Starting kVA:	150.0	Cumulative Step kVA:	1150.7
Running Amps:	180.6				
Alternator kW:	150.0				

141 ELECTRIC HEAT Three Phase Quantity: 1 In this Step

Category:	Miscellaneous - User Defined				
Running kW:	150.0	Starting kW:	150.0	Peak kW:	150.0
Running kVA:	150.0	Starting kVA:	150.0	Peak kVA:	150.0
Running PF:	1.00	Starting PF:	1.00	Cyclic:	Yes
Running Amps:	180.6				
Alternator kW:	150.0			Voltage:	480

Step 17

Calculated Individual Generator Set Step Load Requirements

Running kW:	150.0	Starting kW:	150.0	Cumulative Step kW:	1157.4
Running kVA:	150.0	Starting kVA:	150.0	Cumulative Step kVA:	1300.7
Running Amps:	180.6				
Alternator kW:	150.0				

61 ELECTRIC HEAT? (EST) Three Phase Quantity: 1 In this Step

Category:	Miscellaneous - User Defined				
Running kW:	150.0	Starting kW:	150.0	Peak kW:	150.0
Running kVA:	150.0	Starting kVA:	150.0	Peak kVA:	150.0
Running PF:	1.00	Starting PF:	1.00	Cyclic:	Yes
Running Amps:	180.6				
Alternator kW:	150.0			Voltage:	480

Step 18

Calculated Individual Generator Set Step Load Requirements

Running kW:	48.2	Starting kW:	249.9	Cumulative Step kW:	1407.3
Running kVA:	54.7	Starting kVA:	510.0	Cumulative Step kVA:	1810.7
Running Amps:	65.9				
Alternator kW:	48.2				

141 ATRIUM EX FAN 1 Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	12.0	Starting kW:	62.5	Peak kW:	None
Running kVA:	13.7	Starting kVA:	127.5	Peak kVA:	None
Running PF:	0.88	Starting PF:	0.49	Cyclic:	No
Running Amps:	16.5				
Alternator kW:	12.0			Voltage:	480

Shaft HP:	15.00	Method:	Across The Line
Shaft kW:	11.19		
Efficiency:	0.93	LRkVA Factor:	8.5
Design:	High Efficiency NEMA Design B	LRkVA Code:	K

141 ATRIUM EX FAN 2 Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	12.0	Starting kW:	62.5	Peak kW:	None
Running kVA:	13.7	Starting kVA:	127.5	Peak kVA:	None
Running PF:	0.88	Starting PF:	0.49	Cyclic:	No
Running Amps:	16.5				
Alternator kW:	12.0			Voltage:	480

Shaft HP:	15.00	Method:	Across The Line
Shaft kW:	11.19		
Efficiency:	0.93	LRkVA Factor:	8.5
Design:	High Efficiency NEMA Design B	LRkVA Code:	K

141 ATRIUM EX FAN 3 Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	12.0	Starting kW:	62.5	Peak kW:	None
Running kVA:	13.7	Starting kVA:	127.5	Peak kVA:	None
Running PF:	0.88	Starting PF:	0.49	Cyclic:	No
Running Amps:	16.5				
Alternator kW:	12.0			Voltage:	480

Shaft HP:	15.00	Method:	Across The Line
Shaft kW:	11.19		
Efficiency:	0.93	LRkVA Factor:	8.5
Design:	High Efficiency NEMA Design B	LRkVA Code:	K

141 ATRIUM EX FAN 4 Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	12.0	Starting kW:	62.5	Peak kW:	None
Running kVA:	13.7	Starting kVA:	127.5	Peak kVA:	None
Running PF:	0.88	Starting PF:	0.49	Cyclic:	No
Running Amps:	16.5				
Alternator kW:	12.0			Voltage:	480

Shaft HP:	15.00	Method:	Across The Line
Shaft kW:	11.19		
Efficiency:	0.93	LRkVA Factor:	8.5
Design:	High Efficiency NEMA Design B	LRkVA Code:	K

Step 19

Calculated Individual Generator Set Step Load Requirements

Running kW:	48.2	Starting kW:	249.9	Cumulative Step kW:	1455.4
Running kVA:	54.7	Starting kVA:	510.0	Cumulative Step kVA:	1865.4
Running Amps:	65.9				
Alternator kW:	48.2				

61 ATRIUM EX FAN 1 ? (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	12.0	Starting kW:	62.5	Peak kW:	None
Running kVA:	13.7	Starting kVA:	127.5	Peak kVA:	None
Running PF:	0.88	Starting PF:	0.49	Cyclic:	No
Running Amps:	16.5				
Alternator kW:	12.0			Voltage:	480

Shaft HP:	15.00	Method:	Across The Line
Shaft kW:	11.19		
Efficiency:	0.93	LRkVA Factor:	8.5
Design:	High Efficiency NEMA Design B	LRkVA Code:	K

61 ATRIUM EX FAN 2 ? (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	12.0	Starting kW:	62.5	Peak kW:	None
Running kVA:	13.7	Starting kVA:	127.5	Peak kVA:	None
Running PF:	0.88	Starting PF:	0.49	Cyclic:	No
Running Amps:	16.5				
Alternator kW:	12.0			Voltage:	480

Shaft HP:	15.00	Method:	Across The Line
Shaft kW:	11.19		
Efficiency:	0.93	LRkVA Factor:	8.5
Design:	High Efficiency NEMA Design B	LRkVA Code:	K

61 ATRIUM EX FAN 3 ? (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	12.0	Starting kW:	62.5	Peak kW:	None
Running kVA:	13.7	Starting kVA:	127.5	Peak kVA:	None
Running PF:	0.88	Starting PF:	0.49	Cyclic:	No
Running Amps:	16.5				
Alternator kW:	12.0			Voltage:	480

Shaft HP:	15.00	Method:	Across The Line
Shaft kW:	11.19		
Efficiency:	0.93	LRkVA Factor:	8.5
Design:	High Efficiency NEMA Design B	LRkVA Code:	K

61 ATRIUM EX FAN 4 ? (EST) Three Phase Quantity: 1 In this Step

Category:	Motor				
Running kW:	12.0	Starting kW:	62.5	Peak kW:	None
Running kVA:	13.7	Starting kVA:	127.5	Peak kVA:	None
Running PF:	0.88	Starting PF:	0.49	Cyclic:	No
Running Amps:	16.5				
Alternator kW:	12.0			Voltage:	480

Shaft HP:	15.00	Method:	Across The Line
Shaft kW:	11.19		
Efficiency:	0.93	LRkVA Factor:	8.5
Design:	High Efficiency NEMA Design B	LRkVA Code:	K

Step 20

Calculated Individual Generator Set Step Load Requirements

Running kW:	0.0	Starting kW:	0.0	Cumulative Step kW:	1253.7
Running kVA:	0.0	Starting kVA:	0.0	Cumulative Step kVA:	1410.1
Running Amps:	0.0				
Alternator kW:	0.0				

R. Electrical Power Manufacturer's Data

R-1 Mirus Harmonic Mitigating Transformer – Harmony-1E™

HARMONY™ Series

- Prevents voltage flat-topping caused by non-linear loads
- Reduces upstream harmonic currents
- Eliminates transformer overheating and high operating temperatures
- Eliminates primary winding circulating current
- Saves energy by reducing harmonic losses
- Maintains high energy efficiency even under severe non-linear loading conditions
- Electrostatic shielding for high frequency noise attenuation
- Lowers voltage distortion to prevent premature equipment failure
- Restores ride-through capability of computer equipment
- Treats power quality harmonic issues which K-rated transformers do not address
- Suitable for high K-factor loads without increasing in-rush current
- Reduces current distortion at UPS, generator or Utility service
- Improves Power Factor
- Optional NEMA TP-1 models meet EnergyStar® and EcoLogo™ requirements
- Helps meet IEEE Standard 519 harmonic limits

Harmonic Mitigating Transformers

Energy Efficient, Harmonic Mitigating Transformers with zero sequence flux cancellation technology specifically designed to treat the harmonics generated by computer equipment and other non-linear, power electronic loads.

HARMONY-1™

Superior to K-rated and conventional transformers in reducing voltage distortion (flat-topping) and power losses due to current harmonics created by single-phase, non-linear loads such as computer equipment. Secondary windings arranged to cancel zero sequence fluxes and eliminate primary winding circulating currents. Treats triplen harmonics (3rd, 9th and 15th) within the secondary windings and 5th and 7th harmonics upstream.

HARMONY-2™ (patented)

Dual output, phase shifting HMT provides extremely low output voltage distortion and input current distortion even under severe non-linear loading conditions (Data Centers, Internet Service Providers, Telecom Sites, Broadcasting Studios, etc.). Combining zero sequence flux cancellation with phase shifting treats 3rd, 5th, 7th, 9th, 15th, 17th and 19th harmonics within its secondary windings.

HARMONY-3™ and -4™ (patented)

Three or four output, phase shifting HMT featuring extremely low output voltage distortion and input current distortion by treating 3rd, 5th, 7th, 9th and other higher order harmonics within its secondary windings.

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MIRUS International Inc.
6805 Invader Cres., Unit #12, Mississauga, Ontario, Canada L5T 2K6

TECHNICAL DATA — HARMONY-1E™

EPA ENERGY STAR® HARMONIC MITIGATING TRANSFORMER

GENERAL SPECIFICATIONS:

PRIMARY
3-phase, 3-wire, 60Hz

SECONDARY
3-phase, 4-wire, 60Hz

OPERATING TEMPERATURE RISE
130°C [115°C] [80°C]

INSULATION CLASS[5]
220°C

ANGULAR DISPLACEMENT[1]
Select 0° or 30° lag

ZERO SEQUENCE IMPEDANCE
Zo < 0.95%, Xo < 0.3%

PRIMARY TAPS
15kVA (and all 208V): ± 1 x 5%
30kVA – 750kVA ± 2 x 2.5%

K-FACTOR CAPABILITY
20

CREST FACTOR CAPABILITY
4.5

NEUTRAL BUS AMPACITY
200% of phase current

ENERGY EFFICIENCY *(see table below)*
ENERGY STAR® Compliant **and better**

MAGNETISING INRUSH
< 10 times FL RMS

WINDING MATERIAL
Copper

INSULATING VARNISH IMPREGNATION
Polyester Resin

AUDIBLE SOUND LEVEL
As per NEMA ST-20

15 - 45kVA:	45dB
75 – 150kVA:	50dB
225 – 300kVA:	55dB
500kVA	60dB
750kVA	64dB

ENCLOSURE
Type: NEMA-3R, ventilated
Paint: Polyester powder coated
Colour: ANSI 61 Grey

ELECTROSTATIC SHIELD
Single, [double]

APPLICABLE STANDARDS
NEMA ST20, NEMA TP1, NEMA TP2
CSA C9
CAN/CSA-C802.2

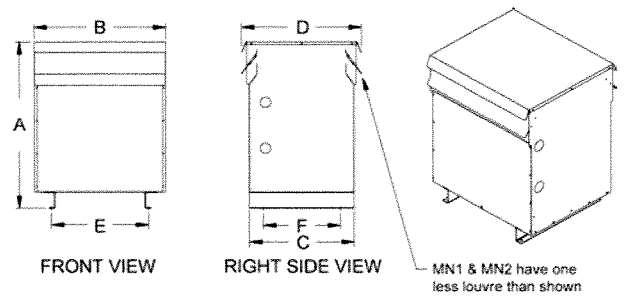
OPTIONS:

OVER-TEMPERATURE SENSORS
[170°C], [200°C]

SOLID BOTTOM PLATE (Case 'MN' only)
[yes], [no]

ECOLOGO
Environmental Choice Model

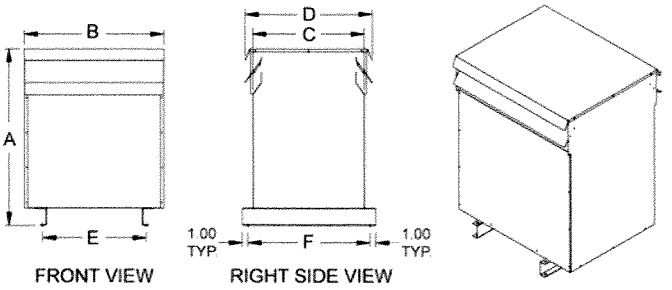
'MN' STYLE ENCLOSURE



DIMENSIONS - inches *[mm]*

CASE STYLE	A	B	C	D	E	F
MN1	22.00 *[559]*	16.75 *[425]*	15.00 *[381]*	19.00 *[483]*	13.75 *[349]*	13.00 *[330]*
MN2	29.00 *[737]*	21.50 *[546]*	19.50 *[495]*	23.50 *[597]*	17.00 *[432]*	17.50 *[445]*
MN3	38.00 *[965]*	26.00 *[661]*	21.00 *[534]*	25.00 *[635]*	21.50 *[546]*	19.00 *[483]*
MN4	41.00 *[1041]*	32.00 *[813]*	25.50 *[648]*	29.50 *[749]*	23.50 *[597]*	23.50 *[597]*

'LN' STYLE ENCLOSURE



DIMENSIONS - inches *[mm]*

CASE STYLE	A	B	C	D	E	F
LN1	51.50 *[1308]*	39.50 *[1003]*	30.00 *[762]*	34.00 *[864]*	24.00 *[610]*	32.00 *[813]*
LN2	59.00 *[1499]*	48.50 *[1232]*	34.00 *[864]*	38.00 *[965]*	27.50 *[699]*	36.00 *[915]*
LN3	66.00 *[1677]*	51.50 *[1308]*	39.00 *[991]*	43.00 *[1092]*	34.00 *[864]*	41.00 *[1042]*
LN6	70.00 *[1778]*	64.00 *[1626]*	40.00 *[1016]*	44.00 *[1118]*	40.00 *[1016]*	42.00 *[1067]*
LN7	75.00 *[1905]*	64.00 *[1626]*	47.00 *[1194]*	51.00 *[1295]*	40.00 *[1016]*	49.00 *[1245]*

Product Code:

H1E t - dd - hhh - xxx - kVA - S

- **Transformer Type**: T = (isolation), A = (autotransformer)
- **Angular Displacement**: 00, 30
- **Primary**: L-L Voltage 208, 480, 600
- **Primary kVA**: 15, 30, 45, 75, 112.5, 150, 225, 300
- **Secondary L-L Voltage**: 208, 480, 600
- **Electrostatic Shield**: S = (single shield), SS = (double shield)

Sizes			Efficiency	Impedances			Terminal Sizes				
							Primary			Secondary	
kVA Primary	Case Style	Weight lb *[kg]*[2]	@35% - 65% Load	3 Phase Short Circuit	Zero Sequence Zo	Zero Sequence Xo	208V	480V	600V	120/208V	Neutral
15	MN2	300 *[136]*	97.0%	2.8-3.5%	< 0.95%	< 0.3%	#2-#14	#6-#14	#6-#14	#6-#14	2x#2-#14
30	MN2	425 *[193]*	97.5%	2.8-3.5%	< 0.95%	< 0.3%	2/0-#6	#2-#14	#2-#14	2/0-#6	2x2/0-#6
45	MN2	550 *[249]*	97.7%	2.8-3.5%	< 0.95%	< 0.3%	250MCM-#6	#2-#14	#2-#14	250MCM-#6	2x250MCM-#6
75	MN3	800 *[363]*	98.0%	2.8-3.5%	< 0.95%	< 0.3%	600MCM-#4	2/0-#6	2/0-#6	600MCM-#4	2x600MCM-#4
112.5	MN4	1100 *[499]*	98.2%	3.2-4.5%	< 0.95%	< 0.3%	2x350MCM-#6	250MCM-#6	2/0-#6	2x350MCM-#6	4x350MCM-#6
150	MN4	1300 *[590]*	98.3%	3.2-4.5%	< 0.95%	< 0.3%	2x350MCM-#6	350MCM-#6	250MCM-#6	2x350MCM-#6	4x350MCM-#6
225	LN1	1900 *[862]*	98.5%	3.2-4.5%	< 1.0%	< 0.5%	Copper Pad	Copper Pad	Copper Pad	Copper Pad	Copper Pad
300	LN2	2600 *[1179]*	98.6%	3.2-4.5%	< 1.0%	< 0.5%	Copper Pad	Copper Pad	Copper Pad	Copper Pad	Copper Pad
500	LN3	3200 *[1451]*	98.7%	5-6%	< 1.5%	< 1.0%	Copper Pad	Copper Pad	Copper Pad	Copper Pad	Copper Pad
750	LN7	4100 *[1860]*	98.8%	6-6.75%	< 2.0%	<1.5%	Copper Pad	Copper Pad	Copper Pad	Copper Pad	Copper Pad

1. Secondary winding group X lags primary group H by the angular displacement.
2. For additional information refer to: Typical Specifications, Technical Guide, Internal Layout and Connection Diagrams.
3. Specifications are subject to change without notice.
4. As an ENERGY STAR® partner, Mirus International Inc. has determined that the H1ET and H1EA transformers meet the ENERGY STAR® guidelines for energy efficiency.
5. 15kVA and 30kVA transformers have 200° C insulation class.

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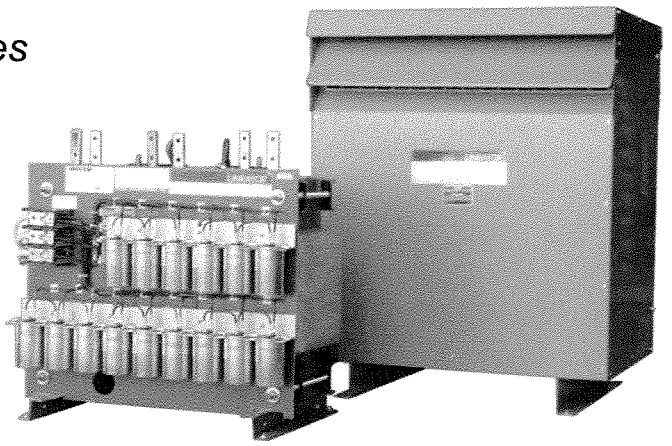
R-2 Mirus Universal Harmonic Filter (UHF) – The Lineator™

THE LINEATOR™ Patented

Universal Harmonic Filter (UHF)

Energy Efficient 18-Pulse Performance
from standard 6-Pulse Variable Speed Drives



- **Treats all major harmonics generated by Variable Speed Drives and other 3-phase rectifier loads (5th, 7th, 11th, 13th …)**
- **Easily applied to input of a single VSD**
  No need to phase shift against other VSD's
  No need for costly harmonic studies
- **Suitable for application on multiple VSD's provided only VSD's are connected**
- **Will meet IEEE 519 standard for both current and voltage distortion**
- **Input current demand distortion < 8% over entire operating range**
- **Power factor 0.98 lagging to 0.95 leading over the normal operating range**
- **Compatible with engine generators since capacitive reactance is < 15% of rated kVA even under light loads**
- **Will not resonate with other power system components or attract line side harmonics**
- **Suppresses overvoltages caused by capacitor switching and other fast changing loads**
- **Eliminates need for drive isolation transformers, AC line reactors and DC link chokes**
- **Removal of harmonics improves overall system power factor**
- **Saves energy by reducing upstream harmonic losses while operating at > 99% efficiency**
- **Reduces RF Interference generated by VSD**

The use of Variable Speed Drives and other static power conversion equipment has grown rapidly in recent years. With this growth has come concern over the level of current harmonics generated by such equipment. Harmonic currents and the voltage distortion these currents create can have devastating effects on a power distribution system and its connected equipment.

Present methods of harmonic treatment (line reactors, multi-pulsed systems, tuned or broadband passive filters and active filters) are often unreliable, moderately effective or too costly. The innovative LINEATOR™ is a proven advance in the area of passive harmonic mitigation. No other device on the market can meet the most stringent limits of IEEE STD 519 at an equivalent size and cost. When the application calls for a truly cost effective harmonic solution, the LINEATOR™ is the only logical choice.

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www.mirusinternational.com lineator@mirusinternational.com

Harmonic Treatment for Variable Speed Drives

The front-end rectifiers of 3-phase, 6-pulse static power convertors (AC-DC), such as those found in variable speed drives, are considered non-linear because they draw current in a non-sinusoidal manner. The current harmonics they generate are predominantly the 5th and 7th with 11th, 13th and other higher orders also present but at lower levels.

Power distribution systems that carry a heavy non-linear load component will often experience problems due to excessive harmonic currents. Problems that can arise include:

- *Power factor correction capacitor failures*
- *Overheating cables, transformers and other distribution equipment*
- *Distortion of the voltage waveform (typically flat-topping) especially when operating on emergency standby generators*
- *False tripping of circuit breakers*
- *Premature failure of motors, generators and other rotating equipment*
- *Misoperation or component failure in PLC's, computers and other sensitive loads*

HARMONIC TREATMENT OPTIONS

There are various methods presently available for treatment of VSD harmonics. Each has its advantages and disadvantages but none can achieve the price/performance level of the LINEATOR™.

Reactors and chokes are a relatively low cost solution but are only moderately effective (Table 1) and their high impedance can introduce troublesome voltage drops.

Conventional **tuned or trap filters**, as their name implies, require tuning to a specific harmonic frequency. Their effectiveness is marginal unless multiple tuned elements are incorporated. Also, they are prone to problems such as resonance with other system components, importation of harmonics from upstream non-linear loads and a leading power factor.

By treating a wider spectrum of harmonics, **broad-band filters** are more effective than tuned filters but can also be more expensive. Although they address some of the issues associated with tuned filters, they are not trouble-free. Specifically, their large capacitor banks create a leading power factor which has been known to cause excitation control problems with generators.

In **multi-pulsed systems**, the drive manufacturer will phase shift between multiple front-end rectifiers to cancel harmonics. Some 18 and 24 pulsed systems can achieve Total Harmonic Current Distortion (THID) of < 8%, but they have a larger footprint, lower efficiency and a higher cost.

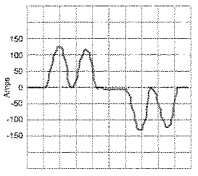
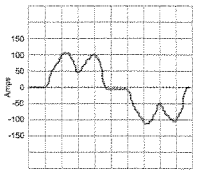
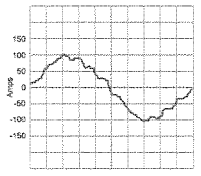
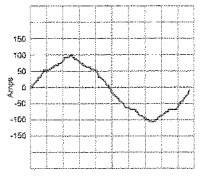
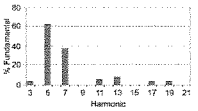
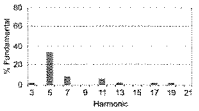
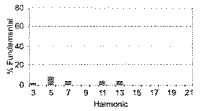
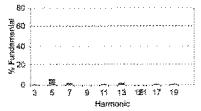
Phase shifting transformers can be a very cost effective method of harmonic treatment but require multiple 6-pulse rectifier loads operating simultaneously. A quasi 12-pulse scheme (ie. cancellation of 5th & 7th harmonics) can be created by phase shifting one VSD against a second similar VSD. 18 and 24 pulse schemes require three and four VSD's respectively.

Active filters treat harmonics by measuring the level of harmonic current present in the system and injecting currents of opposite polarity to cancel them. Excellent performance can be achieved, but reliability is sometimes an issue. Also, high cost and low efficiencies normally makes their use prohibitive.

The LINEATOR™ will treat all of the major harmonics and achieve results previously only attainable through active filtering or multi-pulse systems 18 or higher. Table 1 shows actual test results comparing the harmonics generated by a 60 HP VSD with various passive harmonic treatments. The LINEATOR™ reduced current distortion by more than 10x and brought the power factor to unity. The net result is essentially a linear load, with harmonics no longer at a level for concern.

Compare Performance !

Table 1: Performance comparison of various passive harmonic treatments.

	6-Pulse Rectifier, PWM VSD	With 3% AC Line Reactor	12-Pulse VSD	With MIRUS LINEATOR™
Input Current Waveform				
Input Current Harmonic Spectrum				
Total Harmonic Current Distortion (THID)	72.9%	35.6%	9.3%	5.8%
Power Factor	0.79 Lag	0.90 Lag	0.98 Lag	0.99 Lag

Advantages of the LINEATOR™ over other Passive Filters

The LINEATOR™ is a purely passive device consisting of a revolutionary new inductor combined with a relatively small capacitor bank. It's innovative design achieves cancellation of all the major harmonic currents (including AM Band RFI) generated by VSD's and other similar 3-phase, 6-pulse rectifier loads. The resulting THID is reduced to < 8% and often as low as 5%. Although referred to as a filter, the LINEATOR™ exhibits none of the problems that plague conventional filters.

HARMONICS FROM OTHER SOURCES

As a parallel connected device, the conventional trap filter has no directional properties. It therefore, can easily be overloaded by attracting harmonics from upstream non-linear loads. The LINEATOR™, on the other hand, will present a high impedance to line side harmonics eliminating the possibility of inadvertent importation and overloading.

SYSTEM RESONANCE

At frequencies below its tuned frequency, a conventional filter will appear capacitive. This capacitance has the potential of resonating with the power systems natural inductance. When a filter is tuned to a higher order harmonic, such as the 11th, it could easily resonate at a lower harmonic frequency, such as the 5th or 7th. *The natural resonance frequency of the* LINEATOR™ *is below that of any predominant harmonic, therefore inadvertent resonance is avoided.*

LEADING POWER FACTOR

The large capacitor banks in both trap filters and broadband filters present a capacitive reactance to the system, especially under light loads. This can be a beneficial feature where inductive loads require a compensating reactance to improve a low displacement power factor. However, in most VSD applications, displacement power factor is quite high even though overall power factor is low due to the harmonic content. Compensation for inductive loads is not necessary and, in fact, can cause problems especially when supplied by an emergency standby generator. To address this, more sophisticated filters will be equipped with a mechanism for switching out the capacitors under light loads, increasing cost and complexity. Even under no load conditions, the capacitive reactance (KVAR) of the LINEATOR™ remains below 15% of it's kVA rating. This ensures compatibility with engine generators, without the need to switch out capacitors.

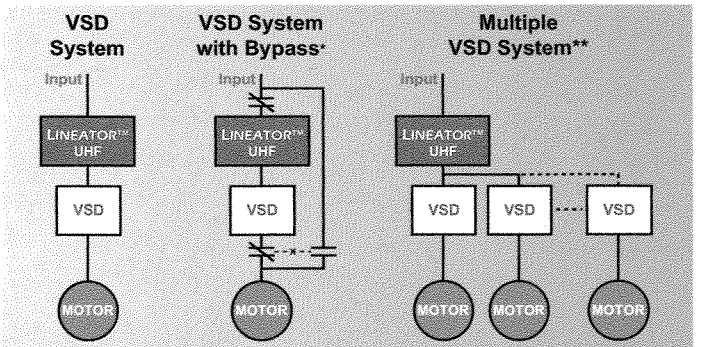


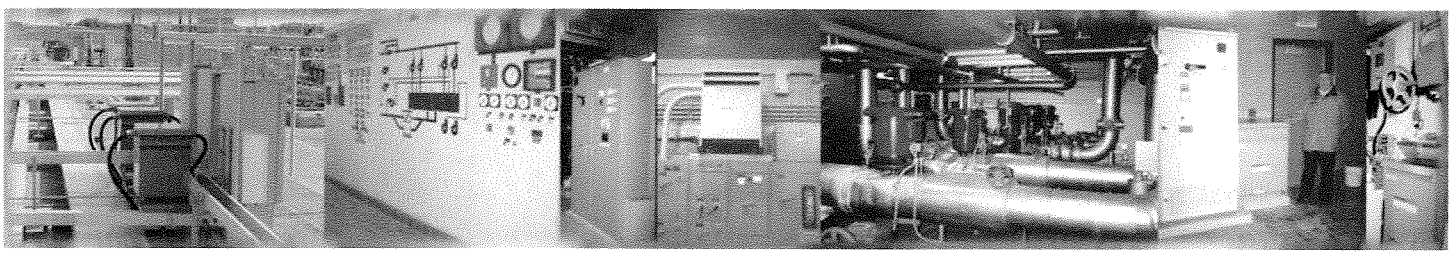
Figure 1: Single line diagrams of VSD systems with the **LINEATOR™**.

HARMONIC DISTORTION REDUCTION

The filtering effectiveness of a trap filter is dependent upon the amount of harmonics present at untuned frequencies as well as the residual at the tuned frequency. To obtain performance better than 15% THID, multiple tuned branches are often required. Broadband filters claim < 12% THID but require relatively large capacitor banks to achieve this. Even larger capacitors are required if further reduction in THID is desired. **The** LINEATOR™ **will reduce current distortion to < 8% and often achieves levels near 5% THID at full load.**

Eliminates Need for Drive Isolation Transformers

Poor field experiences have led many engineers to specify drive isolation transformers on every VSD installation. The belief is that by 'isolating' the drive from the supply many power related problems are eliminated. Although the inherent impedance and galvanic isolation of a drive isolation transformer will provide some protection for the drive against power induced problems, such as capacitor switching overvoltages and high frequency noise, it does very little to protect the supply bus from the harmonics generated by the drive. ***The high let-through impedance of the*** LINEATOR™ ***will provide many of the same benefits as the drive isolation transformer, while also dramatically reducing the harmonics injected into the power system by the drive. It accomplishes this in a much smaller footprint and with improved efficiency. Therefore, the use of the*** LINEATOR™ ***will eliminate the need for drive isolation transformers. In addition, any upstream transformer providing voltage transformation will not need a K-factor rating.***



MIRUS International Inc.
6805 Invader Cres., Unit #12, Mississauga, Ontario, Canada L5T 2K6

TECHNICAL DATA | THE LINEATOR™

Advanced Universal Harmonic Filter (AUHF) [60Hz]

GENERAL SPECIFICATIONS:

HP / kW RATING
Available for motor/drive system sizes up to 2000HP / 710kW

VOLTAGE
Standard voltages up to 600V

FREQUENCY
60Hz (50Hz available)

OVERLOAD CAPABILITY
Suitable for overload of 150% for 60 seconds every 10 minutes

HARMONICS TREATED
5th, 7th, 11th, 13th,...

K-FACTOR SUITABILITY
Up to 20

INPUT K-FACTOR
Reduced to <1.5

INPUT CURRENT DISTORTION
< 8% @ Full Load

EFFICIENCY
> 99%

ELEVATION
≤ 3300ft [1000m] above sea level

VENTILATION
Convection air cooled

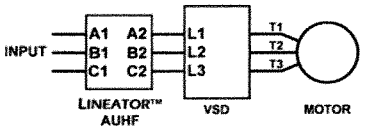
WINDING MATERIAL
Copper

ENCLOSURE
Type: NEMA-2 (5 to 40HP)
NEMA-3R (50 to 2000HP)
Paint: Polyester powder coated
Colour: ANSI 61 Grey
Wall Mtg Capability: 5 to 200HP

OPTIONS:

NEMA-3R Enhanced Outdoor Ventilated Enclosure

Connection Diagram



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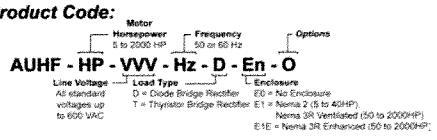
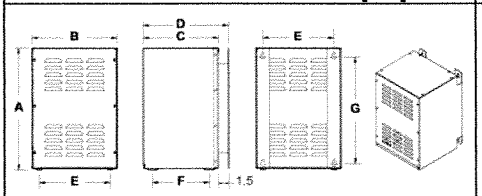
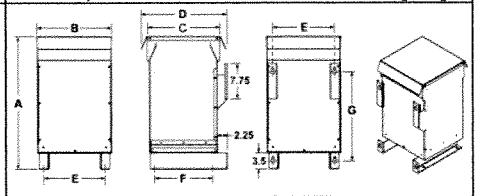


Notes:
1. Approximate Values.
2. For additional information refer to: Typical Specifications, Internal Layout and Connection Diagrams.
3. For Thyristor Diode Bridge models, larger sizes and/or other enclosure types contact Mirus.
4. Specifications are subject to change without notice.

'ST' ENCLOSURE DIM. - inches [mm]

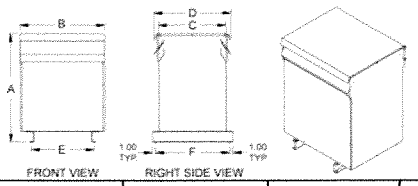


'MT1', 'MT2' ENCLOSURE DIM. - inches [mm]



CASE	A	B	C	D	E	F	G
ST1	17.00 [432]	12.00 [305]	10.50 [267]	12.00 [305]	10.00 [254]	8.00 [203]	15.00 [381]
ST2	20.00 [508]	14.00 [356]	12.50 [318]	14.00 [356]	12.00 [305]	10.00 [254]	18.00 [457]
MT1	29.00 [737]	16.75 [425]	15.00 [381]	19.00 [483]	13.75 [349]	13.00 [330]	19.50 [495]
MT2	38.00 [965]	21.50 [546]	19.50 [495]	23.50 [597]	17.00 [432]	17.50 [445]	25.00 [635]

'MT3', 'MT4', 'LT' ENCLOSURE DIM. - inches [mm]



CASE	A	B	C	D	E	F
MT3	45.00 [1143]	26.00 [661]	21.00 [534]	25.00 [635]	21.50 [546]	19.00 [483]
MT4	51.50 [1308]	32.00 [813]	25.50 [648]	29.50 [749]	23.50 [597]	23.50 [597]
LT1	59.00 [1499]	39.50 [1003]	30.00 [762]	34.00 [864]	24.00 [610]	32.00 [813]
LT2	66.00 [1677]	44.00 [1118]	34.00 [864]	38.00 [965]	26.00 [660]	36.00 [915]
LT3	75.00 [1905]	48.50 [1232]	39.00 [991]	43.00 [1092]	27.50 [699]	41.00 [1041]
LT4	90.00 [2286]	51.50 [1308]	40.00 [1016]	44.00 [1118]	34.00 [864]	42.00 [1067]

Motor Size		Lineator Rating			Losses	Enclosed		Open Style	
HP	kW	Input Amps 480V 3Ph/60Hz	Input Amps 600V 3Ph/60Hz	Output kVA	Full Load Watts[1]	Case Style	Weight lb [kg][1]	Dim. H"xW"xD" [1]	Weight lb [kg][1]
5	4	7	5	7.5	85	ST1	57 [26]	14.5x9x9	40 [18]
7.5	5.5	10	8	11	92	ST1	67 [30]	14.5x9x9	50 [23]
10	7.5	13	10	14	120	ST1	87 [39]	14.5x9x9	70 [32]
15	11	19	15	20	150	ST1	92 [42]	14.5x9x9.5	75 [34]
20	15	25	20	27	190	ST2	138 [63]	17x11x10	80 [36]
25	18.5	32	25	34	235	ST2	100 [45]	17x11x11	88 [40]
30	22	38	30	40	260	ST2	132 [60]	18x11x11.5	100 [45]
40	30	50	40	51	290	ST2	170 [77]	19x11x11.5	120 [54]
50	37.5	63	50	63	320	MT1	186 [84]	17x11x11.5	145 [66]
60	45	75	60	75	400	MT1	210 [95]	18x11x15	152 [69]
75	55	88	70	93	490	MT2	273 [124]	20x15.5x16	190 [86]
100	75	113	90	118	550	MT2	335 [152]	20x15.5x18	254 [115]
125	90	144	115	145	560	MT2	372 [169]	24x20x19	285 [129]
150	110	170	135	175	600	MT2	440 [200]	26x20x19	345 [157]
200	150	225	180	220	675	MT2	445 [202]	26x20x19	360 [163]
250	185	282	225	275	745	MT3	600 [272]	26x22x21	460 [209]
300	200	340	270	330	850	MT3	670 [304]	32x22x22	542 [246]
350	250	397	320	385	1040	MT4	766 [347]	34x25x22	668 [303]
400	315	453	365	440	1250	MT4	800 [363]	35x25x23	685 [311]
500	400	565	455	550	1600	MT4	940 [426]	36x25x23	760 [345]
600	450	695	560	660	2080	MT4	1060 [481]	35x29x24	880 [399]
700	500	800	640	770	2575	LT1	1322 [600]	42x29x27	1100 [499]
800	560	910	730	880	2970	LT1	1815 [824]	42x29x27	1565 [711]
900	630	1018	815	990	3350	LT2	2050 [931]	44x36x28	1675 [760]
1000	710	1130	905	1100	3675	LT2	2290 [1039]	44x36x28	1815 [824]
1100	800	1260	1015	1210	3960	LT3	2300 [1043]	52x34x32	1980 [898]
1200	900	1390	1120	1320	4320	LT3	2440 [1107]	56x34x34	2040 [925]
1300	970	1495	1200	1430	4675	LT3	2590 [1175]	56x34x34	2190 [993]
1400	1000	1600	1280	1540	4900	LT3	2770 [1256]	58x36x34	2370 [1075]
1500	1120	1710	1370	1650	5250	LT4	2970 [1347]	60x42x36	2520 [1143]
1600	1200	1820	1460	1760	5750	LT4	3120 [1415]	62x42x37	2670 [1211]
1800	1350	2035	1630	1980	5900	LT4	3350 [1519]	64x42x37	2900 [1315]
2000	1450	2260	1810	2200	6500	LT4	3650 [1656]	68x42x37	3200 [1451]

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R-3 ABB Three Phase Padmounted Transformers

Three Phase Padmounted Transformers

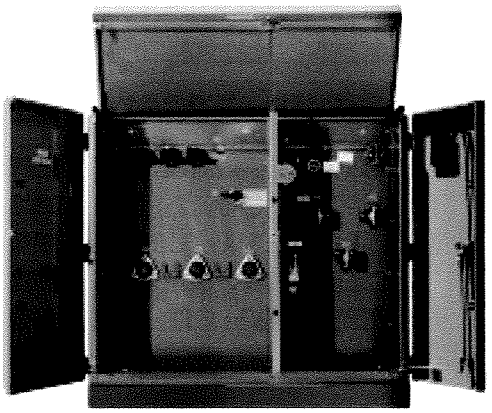
45-3000 kVA

Introduction to ABB

ABB is a global leader in power and automation technologies that enable utility and industry customers to improve their performance while lowering their environmental impact.

Distribution Transformers

ABB Distribution Transformers provide the most complete line of padmounted transformers to meet the applications of any distribution system. We are a dominant force in the industry. We lead the way with the introduction of new products and services for the ever-changing distribution transformer industry.



We can offer cost-effective solutions for power distribution. We support our industry with a commitment to product development. We utilize the latest manufacturing technology to maintain state-of-the-art quality and productivity. Large vertical integration allows us to ship high quality products in the shortest possible production cycle. We are in alliances with major utilities and businesses around the world providing products and services to meet all their needs.

ABB will continue to build on a heritage of quality, customer satisfaction and technology, and capitalize on its resources, to maintain its position as the number one supplier of transformers in the industry.

Our Quality Policy

Total customer satisfaction through continual process improvement.

Our Values

Our values guide us in how we go about meeting our vision and mission.

Customer Success – We seek to provide solutions for mutual competitive advantage. We set the highest standards for quality, meet delivery commitments and provide high value.

Quality Excellence – We want to be recognized as a company that exceeds our customers' expectations.

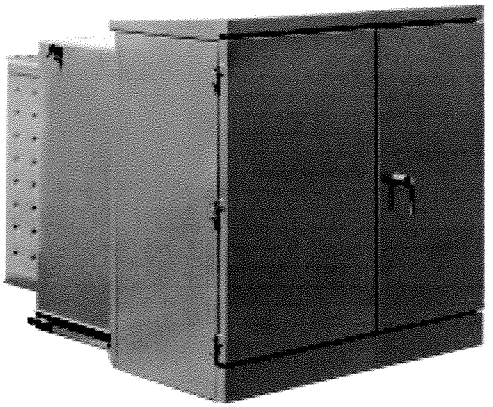


ABB Quality Strategy

Start with a focus on the customer.

Measure what is important.

Define a benchmark for "highest standard for quality."

Have a means to dramatically improve performance against the benchmark.

Three Phase Padmounted Transformers

The ABB MTR is an oil-filled, three-phase, commercial padmounted distribution transformer specifically designed for servicing such underground distribution loads as shopping centers, schools, institutions and industrial plants. It is available in both live front and dead front construction, for radial or loop feed applications, with or without taps.

ABB MTR meets the following industry standards:

IEEE C57.12.00	IEEE C57.12.80
ANSI C57.12.22	IEEE C57.12.90
IEEE C57.12.26	IEEE C57.91
ANSI C57.12.28	NEMA TR1
ANSI C57.12.29	WUG 2.13 Rev. 4
IEEE C57.12.70	

Ratings:

- 45 through 3000 kVA
- 65° C average winding rise
- 60 hertz standard, 50 hertz optional

45-1500 kVA

- High voltages: 4160 Grd Y/2400 through 34,500 Grd Y/19,920 for Grounded Wye systems; 2400 through 34,500 for Delta systems; various dual high voltages

2000-3000 kVA

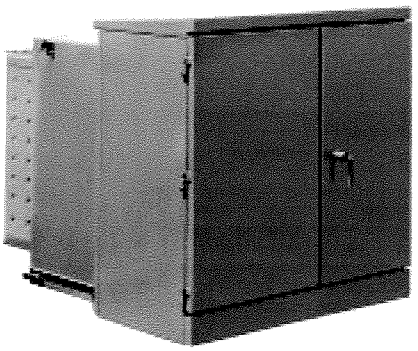
- High voltages: 7200 Grd Y/4160 through 34,500 Grd Y/19,920 for Grounded Wye systems; 4160 through 34,500 for Delta systems; various dual high voltages
- Taps: All voltages are available with or without taps
- Insulation classes: 35 kV, 150 kV BIL and below

45-1500 kVA

- Low voltages: 208Y/120, 216Y/125, 460Y/265, 480Y/277, 480Δ, 240Δ and 240Δ with 120 volt mid-tap in one phase; (4160Y/2400, 4160Δ, 2400Δ, 2400/4160Y/2400 for 500 kVA and larger)

2000-3000 kVA

- Low voltages: 460Y/265, 480Y/277, 480Δ, 4160Y/2400, 2400Δ, 2400/4160Y/2400



Standard Features:

1. Four lifting lugs.
2. Bolted-on terminal compartment (18" or 24" deep depending on KVA) with removable front sill.
3. Hinged, lift-off cabinet doors.
4. Interlocked penta-head bolt/padlock handle operates a cam assembly which is part of the 3-point door latching mechanism. (A hex-head bolt is available.)
5. For live front construction, externally clamped high voltage porcelain bushings with a single eyebolt, clamp-type connector (accommodates #6 AWG solid to 250 MCM stranded conductors).
6. For dead front construction, externally clamped high voltage bushing wells for loadbreak or non-loadbreak inserts.
7. Lightning arrester mounting pads (live front only).
8. Tank ground pads (1 in HV, 1 in LV).
9. Steel high/low voltage compartment barrier.
10. One 1/2" penta-head bolt must be removed from the flange formed on the steel high/low barrier before the HV door can be opened (1/2" hex-head bolt available as an option).
11. Externally clamped low voltage bushings with threaded copper stud for full load current below 2100 amps. Externally clamped integral low voltage bushings for current above 2100 amps. NEMA spades provided per ANSI hole requirements.
12. Nameplate.
13. Fill plug and self-actuating pressure relief device.
14. Drain plug.
15. Removable neutral ground strap.
16. Five-legged core/coil assembly.
17. Handhole cover bolted onto tank top (protected by weathercover).
18. Panel-type coolers.
19. NEMA safety labels.
20. The paint finish process applies a durable, corrosion resistant finish to the product. The multi-step process includes an epoxy primer uniformly applied by cationic electrodeposition and a urethane top coat.

Optional Features:

Primary Termination

- Externally-clamped bushing wells with loadbreak or non-loadbreak inserts.
- Integral loadbreak bushings.

Secondary Termination

- Externally-clamped bushings with NEMA 6-hole, 8-hole, 10-hole, or 12-hole spades.
- Spade supports are available. They are provided for 8-hole spades and larger when the current is 1400 amps or greater.

Primary Switching

- LBOR oil switch: one for radial, two for loop feed.
- Externally-operated tap changer.
- Externally-operated dual voltage switch.
- Externally-operated delta-wye switch.

Overcurrent Protection

- Internal primary protective links.
- Bayonet-type expulsion fuses.
- Drawout, loadbreak current limiting fuses, with or without interlocking transformer switch.
- Secondary oil circuit breaker.
- Internal, partial-range current limiting fuses.

Overvoltage Protection

- Distribution class, metal oxide arresters, 3-36 kV.
- Distribution class, valve-type lightning arresters, 3-27 kV.

Construction Options

- 18", 24" and 30" deep terminal cabinet.
- Drain valve and sampling device.
- Mounting plate for CT's or PT's.
- Interphase barriers.
- Molded case external secondary breaker.
- Substation Accessories – Oil gauge, thermometer, drain valve and sampler, pressure-vacuum gauge provision.
- Weathercover.
  - Transformers may feature an optional weathercover over the cabinet which is hinged to allow clearance for replacement of the bayonet-type fuses.
  - The weathercover can be lifted easily into place and secured with a single supporting arm.
  - The weathercover requires no additional holddown hardware.

Some optional features are not available on larger kVA units.

Live Front, Radial Feed

ANSI Fig. 1, 2, and 3 (C57.12.22)

KVA	A	B	C	D	E	Wt.	Gal. of Oil
75	54.5	56	44.8	44.8	56	2280	115
112	54.5	56	44.8	44.8	56	2400	115
150	54.5	56	44.8	44.8	56	2700	125
225	54.5	56	49.8	46.8	56	3350	150
300	54.5	60	50.8	46.8	56	3650	165
500	58.5	66	58.8	48.8	56	5200	200
750	66.5	81	60.8	50.8	66	7100	270
1000	66.5	84	62.8	54.8	66	7900	320
1500	66.5	86	66.8	58.8	66	9700	390
2000	70.5	96	76.8	62.8	70	12800	430
2500	70.5	100	78.8	62.8	70	14100	500
3000	Contact Factory						

Dead Front, Radial Feed

IEEE Fig. 1, 3, and 4 (C57.12.26)

KVA	A	B	C	D	E	Wt.	Gal. of Oil
75	46.5	62	44.8	44.8	56	2350	115
112	46.5	62	44.8	44.8	56	2450	115
150	46.5	62	44.8	44.8	56	2700	125
225	46.5	62	49.8	46.8	62	3400	150
300	46.5	62	50.8	46.8	62	3700	165
500	54.5	66	58.8	48.8	62	5400	200
750	58.5	81	60.8	50.8	66	7100	270
1000	66.5	84	62.8	54.8	66	7900	320
1500	66.5	86	66.8	58.8	66	9700	390
2000	70.5	96	76.8	62.8	70	12800	430
2500	70.5	100	78.8	62.8	70	14100	500
3000	Contact Factory						

Dead Front, Loop Feed

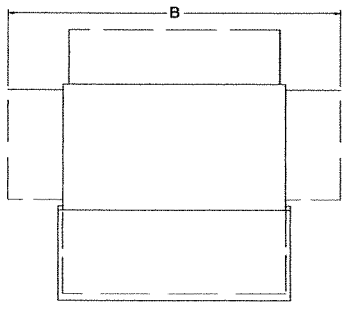
IEEE Fig. 2, 3, and 4 (C57.12.26)

KVA	A	B	C	D	E	Wt.	Gal. of Oil
75	54.5	66	44.8	44.8	56	2400	120
112	54.5	66	44.8	44.8	56	2500	120
150	54.5	66	44.8	44.8	56	2800	130
225	54.5	66	49.8	46.8	62	3500	160
300	54.5	66	50.8	46.8	62	3800	170
500	54.5	68	58.8	48.8	62	5600	200
750	66.5	82	60.8	50.8	66	7400	270
1000	66.5	86	62.8	54.8	66	8200	320
1500	66.5	88	66.8	58.8	66	10300	390
2000	70.5	96	76.8	62.8	70	12800	430
2500	70.5	100	78.8	62.8	70	14100	500
3000	Contact Factory						

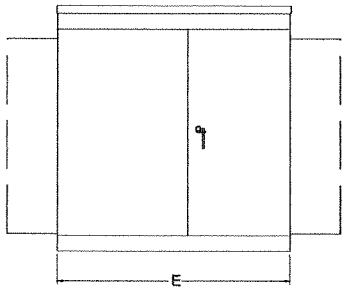
Design Dimensions:

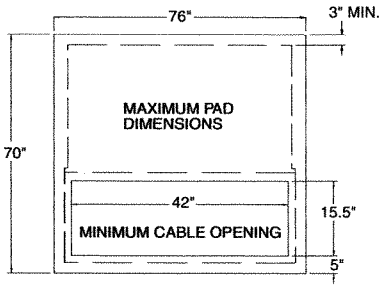
Approximate weights and dimensions: Dimensions are in inches, weights are in pounds. Dimensions may change to meet the customer spec.

Top View

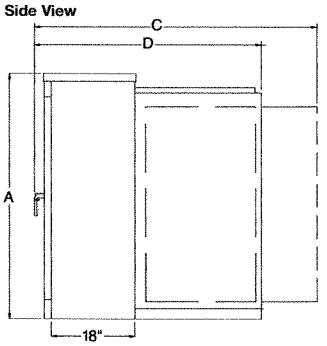


Front View



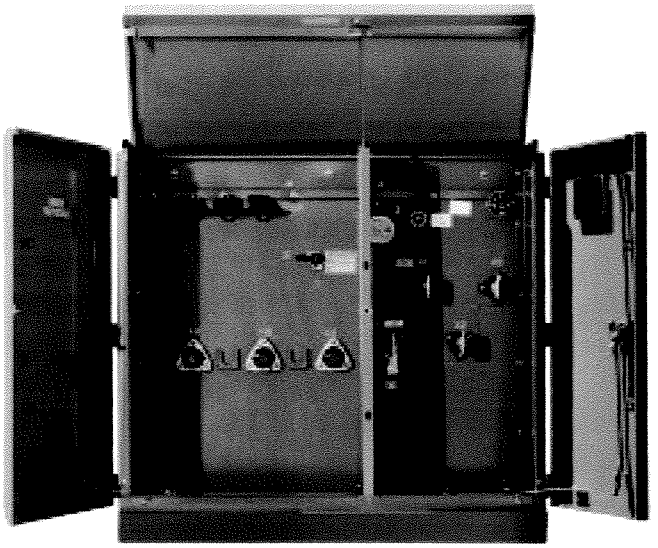


Side View



Fliptop Cabinet Design

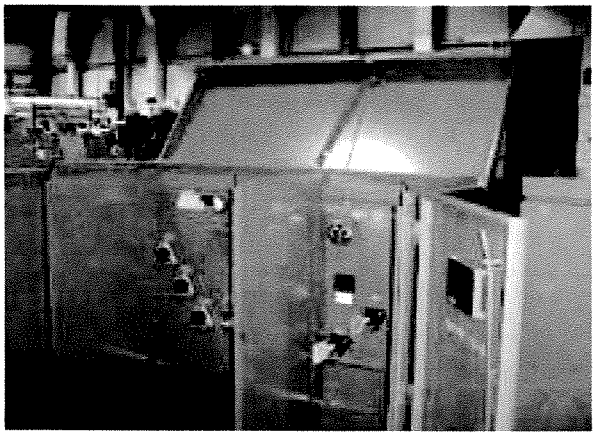
We offer a fliptop air enclosure for three phase padmounted transformers. It is designed to improve operation and to better withstand its outdoor environment. New manufacturing equipment has allowed ABB to fabricate a "fliptop" cabinet design to better serve the needs of our customers. Material choices consist of both carbon steel and stainless steel.

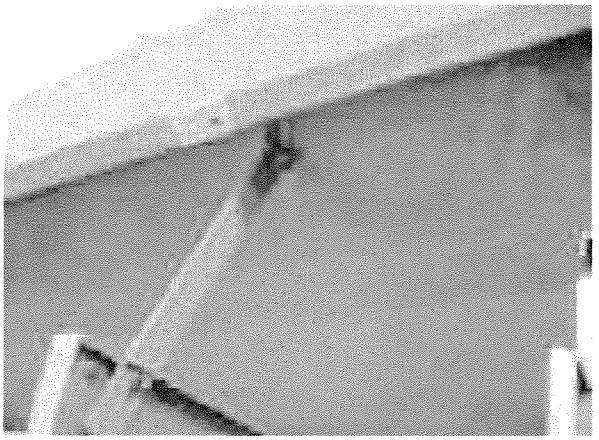


The improvement features of the new cabinet design include:

- One piece "sloped" cabinet weather cover. The cabinet weather cover has a four degree sloped surface to shed all moisture to the rear of the transformer.
- Both the handhole weather cover and the full tank weather cover have a four degree sloped surface to shed water. The full tank weather cover option extends beyond the rear of the transformer to insure all moisture is directed away from the top of the tank.
- The cabinet weather cover support arm is free floating and locks into place automatically. This allows the linemen to use both hands when raising the cover. No reaching into the compartment is necessary to secure the cover in place.
- The cabinet weather cover can be rotated beyond center or easily removed for better access into the the cabinet compartment. The capability of "pulling" cables from above was a feature requested by utilities.
- The interface between the sidewalls and the cabinet weather cover has been redesigned to better receive the weather cover when closed. This new interface minimizes surface contact to prevent the rubbing of paint.

This cabinet design has successfully passed all industry tamper resistance requirements. Using Guidelines for Testing Enclosure Integrity, the design passed pry tests, pull tests, wire probe tests, deflection tests, and the operation test. The tests performed confirm that the cabinet meets the tamper resistance requirements of ANSI C57.12.28 at both 0 and 15 psig, as well as ANSI C57.12.22 and IEEE C57.12.26 demonstrating sufficient strength to withstand an internal static pressure of 7 psig without permanent distortion and 15 psig without rupturing or displacing components of the transformer or affecting cabinet security.





Support Arm Locking Mechanism

MTP Mini-Three Phase Padmounted Transformer

The Mini-Three Phase Padmounted Transformer (MTP) is designed for the needs of utility customers to reduce costs and improve aesthetics. The design is easier to handle, install and maintain. The discreet profile of the MTP is ideal for commercial applications such as banks, stores and restaurants.

The MTP features a hood and removable sill instead of doors. The design allows easy access for installation and maintenance of the transformer.

The ABB MTP meets the following industry standards:

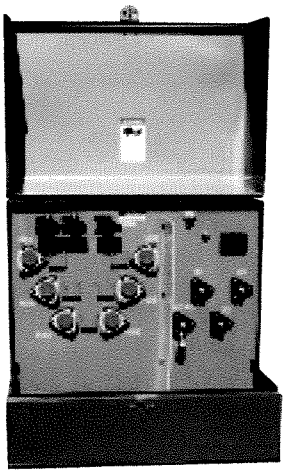
IEEE C57.12.00	NEMA TR-1
IEEE C57.12.26	ANSI C57.12.28
ANSI C57.12.29	WUG 2.13, Rev. 4
IEEE C57.12.70	IEEE C57.91
IEEE C57.12.80	IEEE C57.12.90

Ratings @ 65° C Rise:

KVA: 45-150 kVA
HV: 4160GY/2400 through 24940Y/14400VΔ at 95 BIL spacing only, 2400Δ through 14400Δ at 95 BIL spacing only
BIL: 60, 75, 95 kV
LV: 208Y/120, 216Y/125, 460Y/265, 480Y/277, 480Δ, 240Δ and 240Δ with 120 volt mid-tap in one phase 60 hertz standard, 50 hertz optional

Standard Features:

1. A flip-top hood and heavy duty 3/8", removable stainless steel hinge pins provide safe and durable service.
2. A recessed locking assembly with padlock provisions and a penta-head locking bolt is standard for tamper-resistant operation. A hex-head locking bolt is available.
3. All tanks are constructed of heavy gauge steel. Tank seams are welded and each unit is pressure tested and inspected for leaks prior to shipment.
4. The front sill latches with the flip-top hood, is attached on the side of the tank and is removable.
5. The high voltage universal bushing wells are externally clamped and removable. A parking stand between the bushing wells is provided for attachment of bushing accessories.
6. Externally clamped low voltage bushings.
7. Loop or radial feed, dead front only for high voltage configurations. Loop pattern will be loop "V" with minimum dimensions per IEEE C57.12.26, Fig. 2 at 8.3/14.4 kV. Radial pattern will be either horizontal with minimum dimensions per IEEE C57.12.26, Fig. 1 or a non-ANSI slant pattern.
8. Standard low voltage pattern is the staggered arrangement per IEEE C57.12.26, Fig. 4a with minimum dimensions.
9. Cabinet depth is standardized to be 19 inches.
10. Tamper-resistant design that exceeds ANSI C57.12.28.
11. NEMA safety labels.
12. Nameplate.
13. Five legged core/coil assembly.
14. The paint finish process applies a durable, corrosion resistant finish to the product. The multi-step process includes an epoxy primer uniformly applied by cationic electrodeposition and a urethane top coat.



Optional Accessories:

1. Standard fusing is bayonet with or without under oil partial range current limiting fusing.
2. Taps or delta x wye or dual voltage are available, but not combined with each other.
3. One loadbreak oil switch is possible.
4. A live HO bushing is possible in the high voltage compartment.
5. A high-low barrier will be either metal or glasspoly.
6. Stainless steel designs, including the Mini-Skirt, are available.
7. Full range general-purpose current limiting fuses in dry well canisters will only be available in radial units with single fuse application.
8. Special slant low voltage pattern available upon request. This feature allows more space to mount metering current transformers.
9. Substation accessories available (normally in the low voltage compartment).

Minimum/Maximum Design Dimensions

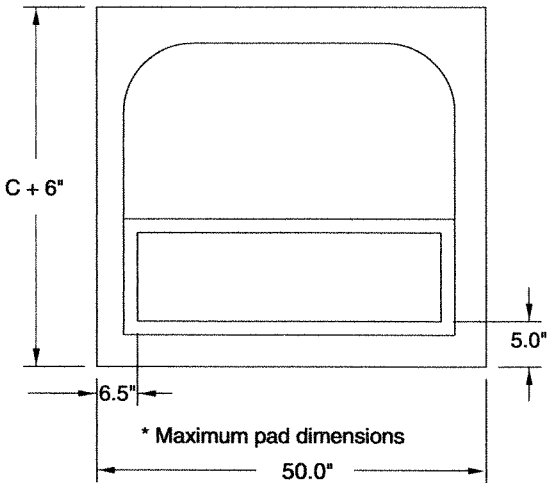
(Actual dimensions will vary according to voltage, loss evaluation, and accessories.)

MTP	A	B	C	D	Wt.
Min.	36	44	51.5	19.25	1750
Max.	42	44	57.5	19.25	2500

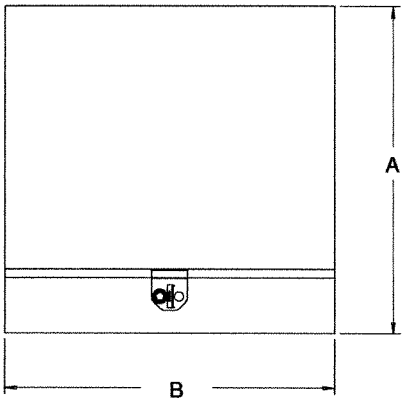
Design Dimensions:

Physical data is approximate and is based on single voltage units with or without taps, with standard 19.25" cable compartment depth. Dimensions are in inches. Weights are in pounds. Dimensions may change to meet specific customer requirements.

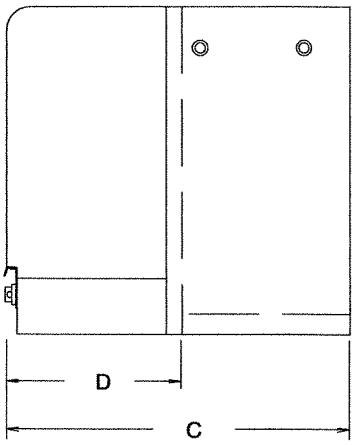
Recommended Pad Dimensions



Front View



Side View



Distribution Transformer Testing

The ABB commitment to manufacture quality distribution transformers is backed by a series of transformer tests used to verify conformance to performance characteristics outlined in the latest revisions of IEEE C57.12.00 and IEEE C57.12.90. These identified tests are also part of the Quality System which is audited semi-annually by DET NOSKE VERITAS (DNV) to ISO Standards.

Testing Program

Factory tests are performed on a transformer to confirm that it is properly designed and constructed to carry rated load and that it will withstand the conditions it will be exposed to in service.

Each transformer manufactured by ABB must undergo a series of tests.

1. Polarity, Phase-Relation, and Ratio
2. Demag Test
3. Applied Voltage Test of the HV
4. Applied Voltage Test of the LV
5. Induced Voltage Test
6. No-Load (Excitation) Loss and Excitation Current
7. Impedance Voltage and Load Loss
8. Full Wave Impulse
9. Continuity Check

Test Facilities

The multi-station, automated test facilities are operated by process control computers. Required interaction with test floor personnel is minimal with the computers initiating and monitoring each test, and then analyzing the test results feedback. The computers are programmed to conduct tests according to ANSI standards, and according to the ratings of each transformer style, the test floor computers will initiate appropriate test setups, compare results with established ANSI standard limits, and determine acceptance for each tested unit.

The test results for each unit are recorded and stored on computer files for access and analysis.

Polarity, Phase-Relation, and Ratio Tests

These tests verify proper phase-relation (three phase), ratio, and polarity (single phase) of the transformer under test. To pass, a unit must demonstrate the proper polarity or phase-relation and have a turns ratio within one-half of one percent of the nominal voltage ratio.

Demag Test

Some transformers require the Demag Test to remove any residual magnetism in preparation for an impulse test. It also serves as a no-load exciting current test. A transformer passes this test if the exciting current does not exceed the limit specified for the design of the transformer.

Applied Voltage Test of the HV

This test checks the dielectric integrity of insulation structures between the high voltage and low voltage, and between the high voltage and ground. A pass/fail decision is made by monitoring the test current intensity. If the resulting current is larger than specified normal leakage and capacitive currents, the unit is rejected. This test is omitted for transformers with a permanently grounded high voltage winding.

Applied Voltage Test of LV

This dielectric test is similar to the Applied Voltage test of the high voltage circuitry except that the integrity of insulation structures between the low voltage and the high voltage, and between the low voltage and ground is checked. A pass-fail decision is made by monitoring the test current intensity. If the resulting current is larger than specified normal leakage and capacitive current, the unit is rejected.

Induced Voltage Test

The principal purpose of this test is to verify the dielectric strength of turn to turn, layer to layer, phase to phase, and other insulation structures within the transformer windings by inducing an overvoltage condition (at higher than normal frequency to avoid saturation of the core). The test current is monitored, and if it exceeds limits specified for each transformer, the unit is rejected.

No-Load Loss and Excitation Current

This test measures the no-load (excitation) loss and the transformer exciting current with rated voltage applied. If the exciting current and/or the no-load loss exceed the limits specified, the transformer is rejected.

Impedance Voltage and Load Loss

This test measures the load loss and the impedance voltage at rated current. The load loss and the impedance voltage must be within specified limits.

Full Wave Impulse

The impulse test is one of several tests designed to verify the dielectric strength of the many insulation structures within the distribution transformer against line voltage surges. It is performed to comply with ANSI standards and for quality assurance. The change in the ANSI standard in 1993 required all manufacturers to install fault detection sensitive enough to detect a single turn short.

Continuity Check

This test is performed on all transformers to verify transformer circuit and component integrity. This test is performed with an ohmmeter to verify that the internal wiring is correct.

The transformer's nameplate is compared to manufacturing information for style, serial number, kVA, HV rating, LV rating, tap voltages, impedance, conductor materials and coil BIL rating. The bushings, electrical accessories, and fuses are verified.

Special Tests

Some tests are performed at the option of the customer.

Sound Testing

ANSI standards define the required sound levels for transformer but some customers specify reduced sound levels. The sound generated by a transformer is affected by the core geometry, flux density, tank design, and the quality of assembly of all the transformer components into a completed unit. Sound tests are made with the unit powered at 100% and 110% of rated voltage under no-load conditions.

Temperature Tests

Core losses and coil losses are the primary sources of heating within the transformer. Our transformers are guaranteed to have an average coil winding temperature of no more than 65° C rise over ambient air temperature when operated at rated voltage and load conditions.

The temperature test is performed to determine the thermal characteristics of the transformer and to verify that they are within design limits.

Calibration

Test equipment is calibrated on a scheduled basis by trained technicians. Calibration records are maintained in accordance with the Quality System procedures. These are audited semi-annually by DNV in accordance with ISO Standards.

Short Circuit Withstand Capabilities

Distribution transformers are subjected to external short circuits on the secondary side. Such external faults can develop on the service line, in the house wiring or in connected loads due to numerous environmental reasons. These faults can be line-to-ground, double line-to-ground or line-to-line.

To meet these operating conditions, the American National Standard Institute (ANSI) has set standards concerning short circuit withstand capability. These standards require that distribution transformers shall be designed and constructed to withstand the mechanical and thermal stresses produced by these external short circuits.

The current standards relating to short circuit strength are IEEE C57.12.00 which sets the short circuit withstand requirements for distribution transformers and IEEE C57.12.90 which provides procedures for short circuit testing.

For distribution transformers, the magnitude of the short circuit current, the numbers of short-circuit tests and the duration of each short circuit test are defined by ANSI standards as follows.

A. Magnitude

Category	Single Phase kVA	Three Phase kVA	Withstand Capability*
I	5-25	15-75	40
	37.5-100	112.5-300	35
	167-500	500	25
II		750-2500	$1/Z_{T**}$

*Base current (Symmetrical) per unit for all distribution transformers with secondary rated 600 V and below.
**The short circuit current will be limited by the transformer impedance only.

B. Number of Tests
Each phase of the transformer shall be subjected to a total of six tests, four with symmetrical fault currents and two with asymmetrical fault currents.

C. Duration of Short Circuit Tests
When short circuit tests are performed the duration of each test shall be 0.25 s except that one test satisfying the symmetrical current requirement shall be made for a longer duration on distribution transformers. The duration of the long test in each case shall be as follows:

Category I:

$$T=1250/I^2$$

Where T is the duration in seconds,

And $I=I_{sc}/I_R$=symmetrical short circuit current, in multiples of normal base current except I shall not exceed the maximum symmetrical current magnitudes listed in A.

Where $I_{sc}=I_R/Z_T$=symmetrical short circuit current, in rms amperes

I_R=rated current on the given tap connection, in rms amperes

Z_T=transformer impedance on the given tap connection in per unit on the same apparent power base as I_R

Category II:

$$T=1.0 \text{ second}$$

Criteria of Satisfactory Performance
According to ANSI Standards a unit is considered to have passed the test if it passes a visual inspection and dielectric tests. Recommended additional checks include examination of wave shape of terminal voltage and current, leakage impedance measurement and excitation current test. (Refer to IEEE C57.12.90.)

The standard allows the following variations in the leakage impedance:

Z_T (Per Units)	Percentage Variation
0.0299 or less	22.5-500 (Z_T)
0.0300 or more	7.5

Z_T=per unit impedance of the transformer

Paint Finish Process

ABB utilizes a multi-step process to apply a corrosion resistant finish to transformers. The materials and processes used are designed to protect against the effects of abrasion, sunlight, rural and industrial atmospheres, and humidity. Each carefully controlled process step has a specific purpose, and each step builds on the previous steps to form the complete protection system that ensures that our transformers meet ANSI functional paint specification guidelines.

Paint Process Procedure

Transformer parts receive the following steps of surface preparation prior to painting.

1. Abrasive cleaning: All parts are cleaned or prepped to remove welding by-products and provide more consistent adhesion and corrosion protection.
2. Alkaline wash cleaner: Removes mill oils, drawing oils, and shop soils that could interfere with good adhesion.
3. Water rinse.
4. Zinc phosphate coating: Provides a firm anchor for good paint adhesion and provides resistance to underfilm corrosion should the paint film be damaged, exposing bare metal.
5. Water rinse.
6. Deionized water rinse: Removes any ionic contamination to prepare for first application of paint.

This entire cleaning and pretreating process is automatic and conveyorized with all chemicals applied by spray. The pretreatment system combines the latest in cleaning technology such as DI rinses and zinc phosphate over abrasive cleaning in a tried and true format to provide the best possible pretreatment before paint is applied.

One of the keys to effectiveness of the ABB paint finish system is the primer. The green epoxy primer is applied by cationic electrodeposition – a dip process in which positively charged primer particles are attracted to grounded parts (cathodes). This method applies a very uniform, pinhole-free coating which penetrates and thoroughly coats all parts. This is a highly effective process for coating parts with difficult geometry. The process utilizes practically 100% of the primer paint, and since the primer is water borne OSHA and EPA emission standards are met. The primer is free of lead and chrome. After rinsing, parts are cured in an oven in preparation for the next step.

After the transformer is assembled, a final coating of two-component urethane paint is spray applied for color and additional film build. The final coat provides the weatherability necessary to protect the unit from sunlight and maintain its appearance.

Summary

The ABB paint system utilizes advanced techniques and materials to provide a superior finish system on pad mounted distribution transformers. Each step in the process is specifically designed to maximize finish performance while minimizing waste to provide the best possible combination of performance and cost.

Paint Finish Specifications and Test Results

Parameter	Test Method	Specification	Typical ABB Value
Total exterior film build	Elcometer 456 Basic F	Not specified by ANSI	2.5-3.5 mils
Salt fog 1500 hrs.	ASTM B117	6 rating per ASTM D1654, no blisters	8 rating per ASTM D1654, no blisters
Adhesion	ASTM D3359 Method A or B	100%	100%
Humidity 1000 hrs.	ASTM D4585 @45c	No blisters, up to 1 pencil hardness change per ASTM D3363	No blisters, no softening
Impact, 80 InLb	ASTM D2794/ ASTM B117	No red rust after 24 hrs.	No red rust after 24 hrs.
Oil resistance	Immerse in 100c Oil for 72 hrs.	No loss of adhesion per ASTM 3359, no blisters, no streaking, up to 1 pencil hardness change per ASTM D3363	No loss of adhesion, no blisters, no streaking, no change in hardness, color or gloss
QUV, 500 hrs.	ASTM G53/D523	50% loss of gloss, no cracks, no crazing	40% loss of gloss, no cracks, no crazing
Abrasion, 3000 cycles	ASTM D4060 24 hrs.	No red rust after 24 hrs.	No red rust after 24 hrs.
Gravelometer, 60 PSI	ASTM 3170/ SAE J400	After 24 hrs. red rust in chips to not exceed 4B rating	5B (better than 4B)
QUV/SCAB, 15 cycles	ASTM G53	6 rating per ASTM D1654, no blisters	7 rating per ASTM D1654, no blisters

Paint meets or exceeds ANSI C57.12.28, C57.12.29 and EEMAC Y1-2, Canadian Standard.

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Distribution Transformers
500 West Highway 94
Jefferson City, MO 65101
Phone 573-634-2111
Fax 573-659-6275
e-mail:
www.abb.com/distributiontransformers

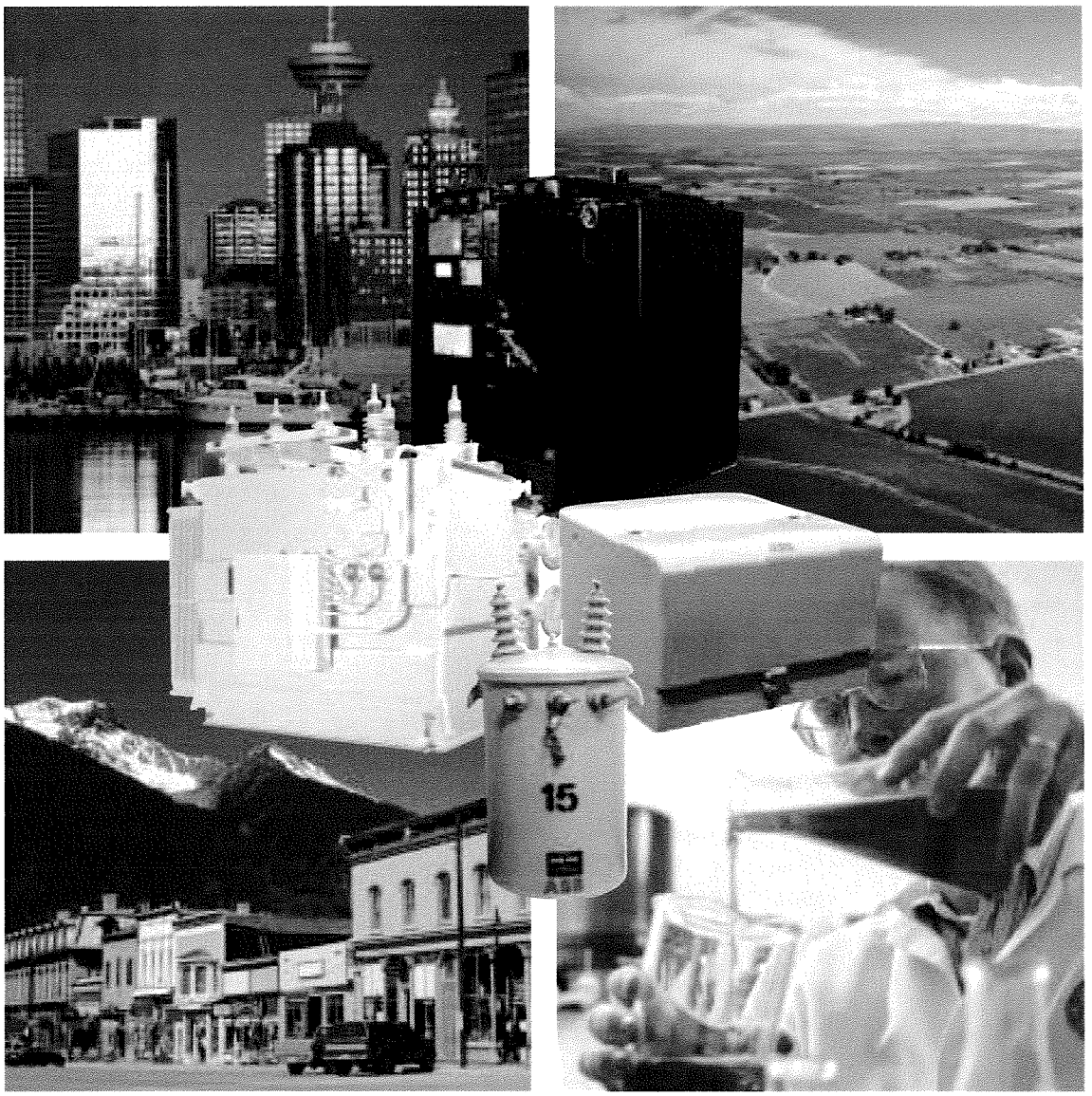
1LUJ460300-LTE

ISO Certified
April, 2005

R-4 ABB Biodegradeable Dielectric Insulating Fluid - BIOTEMP®

BIOTEMP®

Biodegradable Dielectric Insulating Fluid



BIOTEMP®

BIOTEMP® is an advanced dielectric insulating medium that was developed by ABB to be friendly to the environment. The fluid has excellent dielectric characteristics with high temperature stability and superior flash and fire resistance. BIOTEMP® has excellent compatibility with solid insulating materials and is biodegradable in a short time period.

BIOTEMP® is currently in use in small power and distribution transformers across the United States. The fluid has a proven success rate in heavily populated areas and in varying environments from the tropical environment of Hawaii to the frigid northern slopes of Alaska.

TYPICAL PROPERTIES OF INSULATING FLUIDS

	BIOTEMP	Mineral Oil	H.T.H.	Silicone
Electrical				
Dielectric Strengh, kV (ASTM D877)	45	30	40	43
Physical				
Viscosity, cSt. 100°C	10	3	11.5	16
(ASTM D445) 40°C	45	12	110	38
0°C	300	76	2200	90
Flash pt. °C (ASTM D92)	330	145	285	300
Fire pt. °C (ASTM D92)	360	160	308	330
Specific Heat (cal/gr/°C) (ASTM D2766)	0.47	0.43	0.45	0.36
Coefficient of Expansion, /°C (ASTM D1903)	6.88×10^{-4}	7.55×10^{-4}	7.3×10^{-4}	1.04×10^{-3}
Pour pt. °C (ASTM D97)	-15 to -25	-40	-24	-55
Sp. Gravity (ASTM D1298)	0.91	0.91	0.87	0.96
Color (ASTM D1500)	<0.5	0.5	0.5 - 2.0	<0.5
Environmental				
Biodegradation Rate (%) 21 - day CEC - L - 33	97.0	25.2	27.1	0.0

Environmentally friendly

BIOTEMP® is non-toxic to bird, animal and human life and is 97% biodegradable within 21 days when exposed to microbes. The fluid does not contain any petroleum, halogens, silicones or other materials that might adversely effect the environment.

BIOTEMP® is a renewable and biodegradable vegetable oil as defined under the Edible Oil Regulatory Reform Act of 1995. The fluid is based on a property-enhanced vegetable oil, combined with stabilizers to enhance oxidation stability.

Dielectric strength with improved tolerance to moisture

BIOTEMP® exceeds the dielectric strength of mineral oil and High Temperature Hydrocarbons (HTH's) and maintains dielectric strength with higher levels of moisture.

Moisture is soluble in BIOTEMP® up to 1100 PPM at room temperature. Moisture at this level does not result in the formation of a separate water (ice) layer. Free moisture (moisture levels above 500PPM) can have a negative effect on electric and chemical properties.

Due to the affinity of BIOTEMP® to absorb water, studies indicate that the life of insulation paper can be increased over transformer oil from petroleum sources. The study showed that BIOTEMP®/Kraft paper has double the life of mineral oil/Kraft paper with tensile strength and degree of polymerization measurements validating this conclusion.

When maintained in sealed equipment in the absence of dissolved contaminants and free water, BIOTEMP® does not form fungal or other biological growths. However, under extended warm conditions and in the presence of contaminants that can act as food materials for fungi, free moisture may lead to biological growths in the unit. As with other fluids, care must be exercised when handling and testing to keep the material clean and free of excessive moisture and exposure to oxygen.

Gas absorption and gas evolution

BIOTEMP® has many advantages over existing insulating fluids in relation to gas absorption and gas evolution under arcing. Testing has confirmed that only 25% of the total volume of gasses generated from petroleum based oils are produced when BIOTEMP® is arced. The gasses produced do not contain many of the polyaromatic hydrocarbons associated with arcing petroleum-based oils. Arcing BIOTEMP® produces carbon monoxide, hydrogen, and detectable traces of smaller hydrocarbon molecules.

Superior thermal characteristics

Pour point for BIOTEMP® is -15 to -25°C; this value is comparable to HTH's. BIOTEMP® does not expand upon freezing and solidifies into a hard gel-like solid that still acts as both an insulating and cooling medium. In transformers, gas evolution from rapidly cooled BIOTEMP® has not been observed.

A unit filled with BIOTEMP® was cooled down to -70°C and than energized at 100% full load. This load was maintained until the unit reached full operating temperature, 65°C. The fluid returned from a solid to a liquid state as the operating temperature increased without detrimental effects.

The thermal properties of BIOTEMP® are superior to conventional mineral oil. The fluid has a lower oil temperature rise than mineral oil when used in transformers. Higher thermal conductivity results in improved heat transfer.

Compatibility with materials

BIOTEMP® is not affected by reactions

with other materials of transformer construction and is non-oxidizing and non-corrosive at temperatures considerably above normal operating temperatures.

High temperature stability

BIOTEMP® has distinct advantages over other high temperature dielectric fluids with fire and flash points well above 300°C. BIOTEMP® is difficult to ignite and produces only carbon dioxide and water without harmful polyaromatic or silicate byproducts when burned.

Oxidation Stability

BIOTEMP® is provided with oxidation inhibitors at a level non-toxic to humans. During the normal expected life of a unit, the oxidation inhibitors in the fluid should provide more than enough protection from oxidative degradation. Units are shipped under a dry nitrogen blanket and excessive oxidation should not occur unless the fluid is left exposed to air for several hours without degassing before prolonged operation.

Oxidation stability testing shows that BIOTEMP® remains liquid and sludge does not form. Although neutralization values in some cases exceed the maximum specifications set for mineral oil at 72 and 164 hours, Life Test results show that this is not detrimental to the operation of the transformer.

Fire Safety and Codes

Factory Mutual has listed BIOTEMP® as a "Less Flammable" fluid and Underwriters Laboratories classifies it as a "Less Hazardous" dielectric medium in respect to fire hazard. Dielectric fluids are not currently available on the market that can exceed the flash and fire points of BIOTEMP®.

Storage and handling

BIOTEMP® can be transferred and stored similar to petroleum based fluids. Transfer equipment and storage vessels should be clean and free of contaminates and moisture. During storage, the vessel should be airtight and is preferably stored under dry nitrogen. BIOTEMP® is not an aggressive solvent and is not known to degrade rubber hoses or membranes.

Recommended Maintenance

Degassing and refilling the headspace with dry nitrogen after prolonged or frequent exposure (totaling more than five hours) to air is necessary for the life of the fluid. Periodic maintenance tests should follow the same schedule used for mineral oil-filled equipment.

BIOTEMP® TYPICAL FLUID PROPERTIES

Property	Value	Test Method
Electrical		
Dielectric Breakdown, min.	45 kV @ 25°C	ASTM D877
Dielectric Breakdown, min.	32 kV @ .04" gap 65 kV @ .08" gap	ASTM D1816
Dissapation Factor (Power Factor) max.	0.15% @ 25°C 2.0% @ 100°C	ASTM D924
Relative Permittivity (Dielectric Constant)	3.2 @ 25°C	ASTM D924
Volume Resistivity	1 x 10^{13} Ω-cm @ 100°C	ASTM D1169
Dielectric Breakdown, Impulse, min.	100 kV (- needle) 90 kV (- needle)	ASTM D3300
Gassing Tendency, max.	+5.0	ASTM D2300
Physical		
Color, max	<0.5	ASTM D1500
Coefficient of Expansion	6.88 x 10^{-4}/°C	ASTM D1903
Flash Point, min.	330°C	ASTM D92
Fire Point, min.	360°C	ASTM D92
Pour Point, max.	-15 to -25°C	ASTM D97
Specific Gravity, max.	0.91 @ 15°C	ASTM D1298
Specific Heat (Cal./ gm./°C)	0.57 @ 25°C 0.60 @ 100°C 0.67 @ 200°C	ASTM D2766
Thermal Conductivity, W/(mK)	0.17 @ 25°C 0.26 @ 100°C 0.36 @ 200°C	ASTM D2717
Viscosity, cSt. max.	10 @ 100°C 45 @ 40°C 300 @ 0°C	ASTM D445
Visual Appearance	Clear & Bright	ASTM D1524
Chemical		
Corrosive Sulfur	Non - Corrosive	ASTM D1275
Inorganic Clorides & Sulfates	Non - Detectable	ASTM D878
Moisture Content, max.	150 PPM	ASTM D1533
Neutralization Number (Acid), max.	0.075 mg. KOH/gm.	ASTM D974
PCB Content	Non - Detectable	ASTM D4059

Applications

BIOTEMP® is suitable for application indoors and in areas of heightened environmental sensitivity where any insulating fluid spill could require expensive clean-up procedures.

Retrofilling Transformers

BIOTEMP® mixes in all proportions with mineral oils. Concentrations of mineral oil in excess of 10% by weight may lower the fire point below 300°C. BIOTEMP® does not mix with silicone fluids.

Specification Guide

The dielectric coolant shall be listed less-flammable fluid meeting the requirements of National Electrical Code Section 450-23, including a minimum fire point of 300°C and the requirements of the National Electrical Safety Code (IEEE C2-1997), Section 15. The fluid shall be non-toxic, non-bioaccumulating and biodegradable. It shall be Factury Mutual Approved and UL Classified, BIOTEMP® Fluid or equal.

Descriptive Bulletin 47-1050 Revised 01/02 The Musselman Group, Roanoke, VA

ABB Inc.

2135 Philpott Road
South Boston, VA 24592
(434) 575-7971 Fax: (434) 575-2208

www.abb.com/transformers

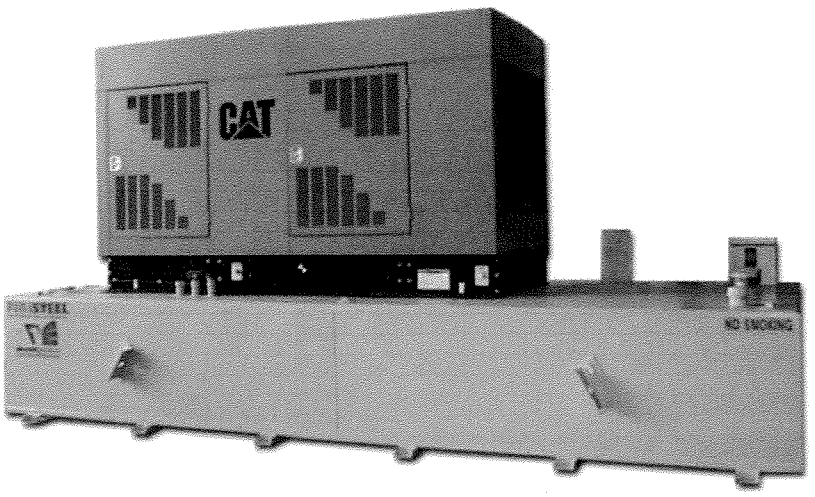
R-5 Fire Steel Sub-Base Fuel Tank

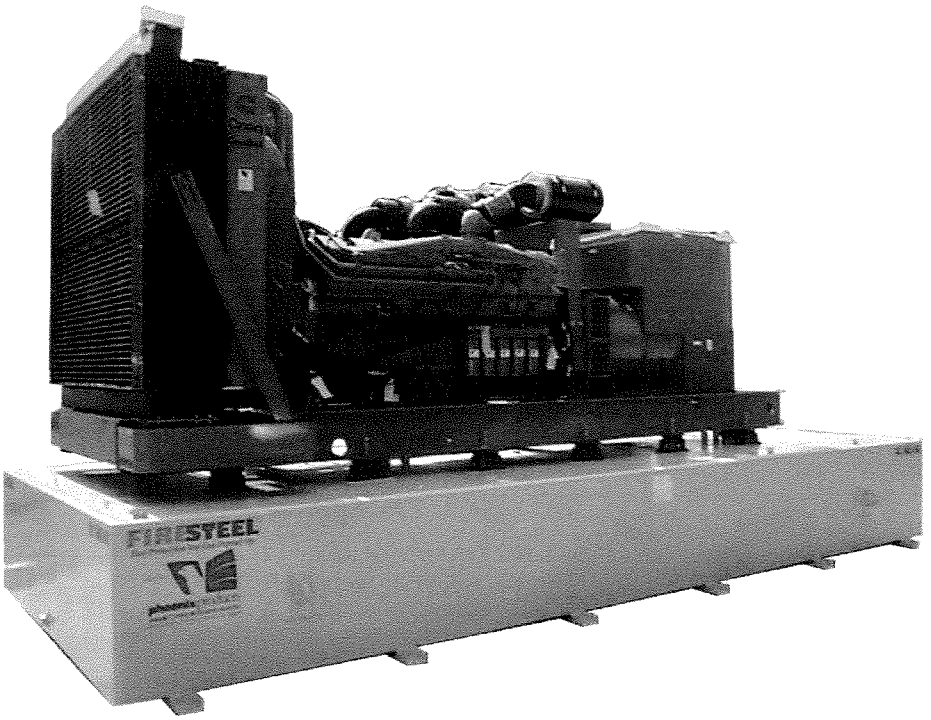
FireSteel™ – Protected Secondary Containment Generator Base Tank

Phoenix Products invented the fire-rated generator base tank and holds three patents issued by the U.S. Patent & Trademark Office (No. 6,026,975; 6,257,437; 6,349,873)

- UL Listed Special Purpose Tank - Protected Secondary Containment Generator Base Tank
- UL 142, UL 2085, NFPA 30, 37 and 110
- Full scale fire tested – limited primary tank temperature to average 260° F rise
- Vehicle impact tested – 12,000 lb. vehicle at 10 mph
- Projectile tested – 150-grain, 30-caliber bullet, muzzle velocity 2700 fps from 100'
- Load tested – 1000 lbs. per square foot

1. Double-walled rectangular steel tank is a UL listed special purpose tank, secondarily contained and protected, and vaulted with special light-weight concrete.
2. Tank supports generators weighing up to 60,000 pounds.
3. 30-year warranty covers primary tank, secondary tank, and concrete vaulting.
4. Concrete vaulting between inner and outer tank provides minimum two-hour firewall rating per Uniform Building Code.
5. Includes earthquake/hurricane restraint tie-downs.
6. Coated with proprietary high-build polyester glass flake and a finish coat of polyurethane.



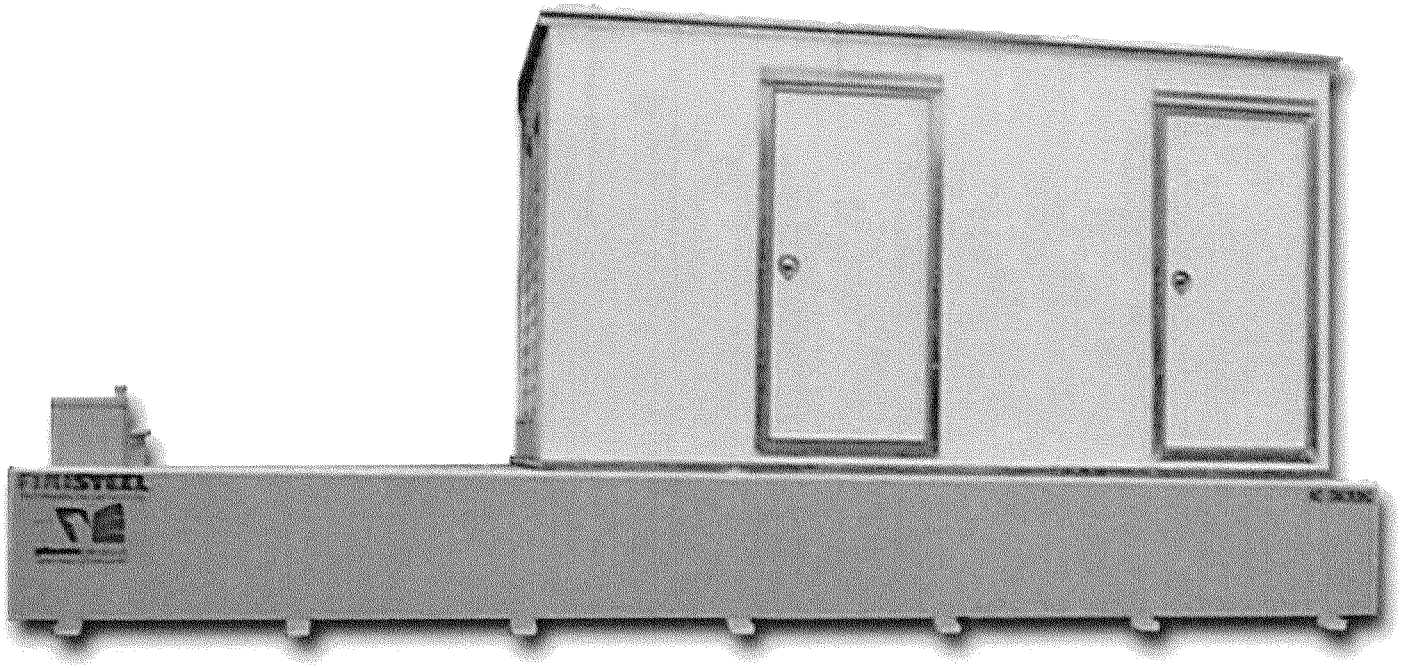


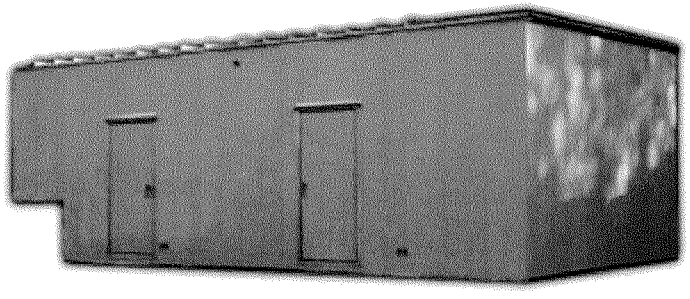
MODEL	CAPACITY IN GALLONS	WIDTH	LENGTH	HEIGHT
GSEV-0300	300	SIZED PER USER REQUIREMENTS		
GSEV-0400	400	SIZED PER USER REQUIREMENTS		
GSEV-0500	500	SIZED PER USER REQUIREMENTS		
GSEV-0600	600	SIZED PER USER REQUIREMENTS		
GSEV-1000	1000	SIZED PER USER REQUIREMENTS		
GSEV-1500	1500	SIZED PER USER REQUIREMENTS		
GSEV-2000	2000	SIZED PER USER REQUIREMENTS		
GSEV-3000	3000	SIZED PER USER REQUIREMENTS		
GSEV-4000	4000	SIZED PER USER REQUIREMENTS		
GSEV-5000	5000	SIZED PER USER REQUIREMENTS		
GSEV-6000	6000	SIZED PER USER REQUIREMENTS		
GSEV-8000	8000	SIZED PER USER REQUIREMENTS		
GSEV-10000	10000	SIZED PER USER REQUIREMENTS		
GSEV-12000	12000	SIZED PER USER REQUIREMENTS		
GSEV-13500	13500	SIZED PER USER REQUIREMENTS		

R-6 200 mph Wind Rated Aluminum Generator Enclosure

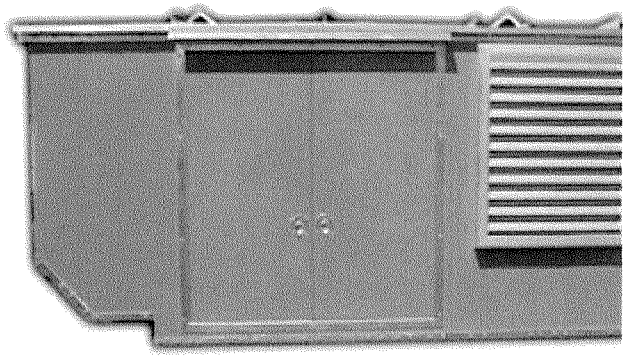
Generator Enclosures

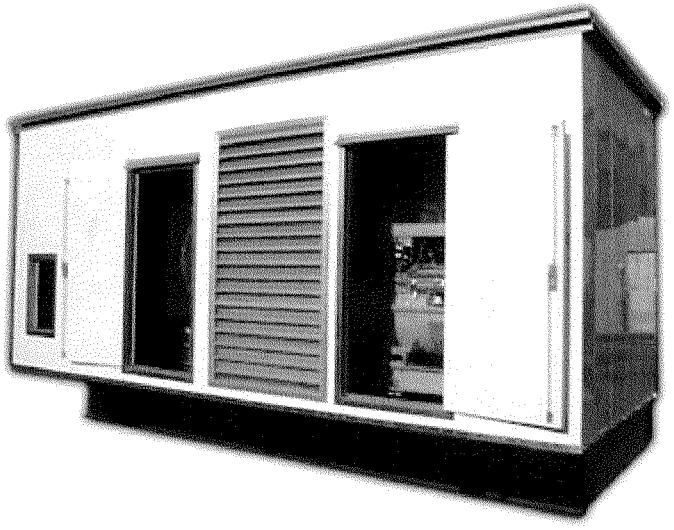
Custom fabricated enclosures to match sub-base fuel storage tank.





1. Manufactured from aluminum, stainless steel, or galvanized steel. Modular design of roof and wall panels allows rapid assembly. Stainless steel hardware and lockable doors.
2. Aluminum enclosures coated on both sides with white enamel. Stainless enclosures typically not coated.
3. Fixed aluminum intake louvers with bird





screens and counterbalanced gravity open aluminum discharge louvers provide engineered design airflow.

4. With or without sound attenuation.
5. Typically pre-packaged with sub-base tank and Gen-Set.
6. Designed to withstand wind load as required by user, minimum rating 120 mph. (200 mph available)
7. Optional extended warranty available.
8. Complete packaging available including switchgear, transformers, circuit breakers and control panels.