

CITY OF SACRAMENTO
1231 I Street, Sacramento, CA 95814

Permit No: 0001856
Insp Area: 1

Site Address: 1407 J ST SAC
Parcel No: 006-0056-014

Sub-Type: ACOM
Housing (Y/N): N

CONTRACTOR
H C OLSEN CONSTRUCTION
OCAMPO-ESTA CORPORATION
710 E. LOS ANGELES AVE
MONROVIA, CA 91016

OWNER
AT & T COMMUNICATIONS OF CALIFORNIA INC
SACRAMENTO CA
95851

ARCHITECT
1419 TENNESSEE
VALLEJO CA 94590

**Nature of Work: HVAC UPGRADE OF 8TH FLOOR OF AT&T BLDG, BLDG "A" . INSTALL
NEW LIGHT FIXTURES**

CONSTRUCTION LENDING AGENCY: I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C).

Lender's Name _____ Lender's Address _____

LICENSED CONTRACTORS DECLARATION: I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.

✓ License Class B1 License Number 177029 Date 11/28/00 Contractor Signature [Signature]

OWNER-BUILDER DECLARATION: I hereby affirm under penalty of perjury that I am exempt from the contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code; any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 (commencing with Section 7000) of Division 8 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars (\$500.00):

____ I, as a owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professional Code). The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his/her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he/she did not build or improve for the purpose of sale.)

____ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code). The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law.

____ I am exempt under Sec. _____ B & PC for this reason: _____

Date _____ Owner Signature _____

IN ISSUING THIS BUILDING PERMIT, the applicant represents, and the city relies on the representation of the applicant, that the applicant verified all measurements and locations shown on the application or accompanying drawings and that the improvement to be constructed does not violate any law or private agreement relating to permissible or prohibited locations for such improvements. This building permit does not authorize any illegal location of any improvement or the violation of any private agreement relating to location of improvements.

I certify that I have read this application and state that all information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction and hereby authorize representative(s) of this city to enter upon the abovementioned property for inspection purposes.

✓ Date 11/28/00 Applicant/Agent Signature [Signature]

WORKER'S COMPENSATION DECLARATION: I hereby affirm under penalty of perjury one of the following declarations:

____ I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Section 3700 of the Labor Code, for the performance of work for which the permit is issued

✓ [Signature] I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier REPUBLIC INDEMNITY CO Policy Number 027686 06 Exp Date 04/01/2001

____ (This section need not be completed if the permit is for \$100 or less) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

✓ Date 11/28/00 Applicant Signature [Signature]

WARNING: FAILURE TO SECURE WORKER'S COMPENSATION COVERAGE IS UNLAWFUL AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS (\$100,000) IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST AND ATTORNEY'S FEE.

THIS PERMIT SHALL EXPIRE BY LIMITATION IF WORK IS NOT COMMENCED WITHIN 180 DAYS.



1945 Las Plumas Ave.
San Jose, CA 95133

Phone: 408-928-3000

FAX: 408-928-3003

HVAC Balance Test Report #2301 Rev. 1
8th Floor Remodel - May 2000

0001856

AT&T Building A
Sacramento, CA

Certification

The data presented in this report is an exact record of the condition and performance of the systems as they existed at the time of testing. All services were performed in accordance with either the procedural standards the National Environmental Balancing Bureau (NEBB) or the procedures as indicated on the individual test sheets. All measurements were performed using calibrated test instrumentation having accuracy's within industry acceptable field measurement tolerances.

Guaranty

If for any reason MESA3 has failed to comply with either the above certification or the contract document requirements, except for equipment malfunction, inadequacy or improper design, MESA3 shall re-perform the services as required to bring the report into compliance. No extra charges for these services shall be made. The services covered in this report are guaranteed for a period of ONE YEAR following the date of the report. This guaranty shall be null & void should any person change, modify, readjust, or alter the described systems in any manner without our prior acknowledgment with the exception of normal maintenance.

Personnel Record

Tests Performed By:
Mike McCormack

Report Prepared By:
Lynn Poppen

Test Sheets Reviewed By:
Greg Bluhm

Final Report Review:

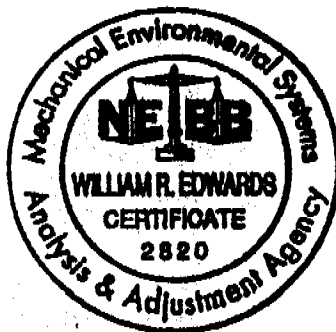
Greg Bluhm, QA Manager

8/23/00
Date

Report Approval:

William R. Edwards, Engineering Manager

8/28/00
Date



"Leading professionalism and expertise to higher plateaus"



HVAC Balance Test Report #2301
8th Floor Remodel - May 2000
AT&T Building A

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Section 3. Item 1. Partial (E) CHW Flow Station

Section 4. Reference Drawings

	Number	Rev	Description
Item 1.	6K-1	0	Air Distribution



HVAC Balance Test Report #2301 Rev. 1
8th Floor Remodel - May 2000
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Report Comments

Section 1 Item 1 Page 1 of 1

- 1. **SCOPE**
 - 1.1. Test and balance the 8th floor office HVAC modifications.
 - 1.2. Adjust fan coil chilled water flow.
- 2. **RESULTS**
 - 2.1. With the exception of the following, all systems were balanced to within design parameters;
 - 2.1.1. Supply was left high at the request of Scott Davis with Vanguard Construction.
 - 2.1.2. OSA Damper does not fully close.
- 3. **RECOMMENDATIONS**
 - 3.1. **Future Actions**

In addition to the regular preventive maintenance that should be performed on the systems, we recommend that the following special activities also be performed.

 - 3.1.1. Have the following services performed by either MESA3 or another firm that is certified by NEBB in the TAB discipline.
 - A. BI-Annual airflow verification of the supply, return, exhaust and outside air quantities.
- 4. **REV. 1**
 - 4.1. Additional test data for FCU-1 added.



HVAC Balance Test Report #2301
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Test Equipment Detail

Section 1 Item 2 Page 1 of 1

Application	Description	Manufacturer	Model	MESA3 EQ #	Current Cal	Cal Due	
Air Velocity - Duct	Air Data Multimeter / Flowhood	Shortridge	ADM-860	231	7/22/99	7/23/00	
Air Velocity - Fume Hood							
Air Velocity - Registers							
Air Volume - Registers							
Air Differential Pressure							
Duct Static Pressure							
Air, Contact & Immersion Temperature							
Duct Leak Testing	Calibrated Orifice Tube	United McGill	LTK-S			N/A	
Rotational Speed	Chronometric Tachometer	O.Zernickow	252				
	Stroboscope Tachometer	Exttech	481830				
	Digital Tachometer	Pacer	DT3				
Electrical	Digital Clamp-on Volt / Amp Meter	Fluke	32				
	Digital Mult Meter	Fluke	29				
	Documenting Process Calibrator	Fluke	701				
Water Gage Pressure	Hydro Data Multimeter	Shortridge	HDM-150	459	12/14/99	12/14/00	
Water Differential Pressure			HDM-300				
Air, Contact & Immersion Temperature							
Air, Contact & Immersion Temperature	Multi-Temp	Shortridge	MT-44K				
Multi-Point Measurement							
Temperature Source	Dry Block Temperature Chamber	ThermaCal	18B-0-600				
Relative Humidity	Chilled Mirror Meter	General Eastern	M-4				
	RH Chamber	General Eastern	C-1				
	Salt Bath Calibrator	Vaisala	HMC-11				
	Thin Film Capacitive RH Meter	Vaisala	HMC-20 / HMP20B				
Measurement & Source	Thin Film Capacitive RH Meter	Vaisala	HM-34F				
Relative Humidity & Temperature							
PC Based Monitoring & Logging	Data Acquisition	National Instruments	BCXI-1100/1200 & LabView		N/A	N/A	
	Temp & Humidity Transmitters	Vaisala	HMD-20VB				
	DP Transmitters	Mamac	PR-274-R2-mA				
Air Temperature Recorder	Digital Data Recorder	MicroLogger	32-88F				
Relative Humidity Recorder	Digital Data Recorder	MicroLogger	1H100-C				
Airborne Particle Counter (non-viable) w/ Temp & %RH	Laser Particle Counter	Mel-One	Particle Counter: A2408				
			Particle Counter: A2100B				
		T&RH Probe: 85A					
		T&RH Probe: 85					
		PMS	Micro LPC-110				
			LPC-525				
Airborne Particle Counter (Viable)	Viable Microbe Air Sampler	Biotech	RCS Centrifugal Air Sampler				
DOP Filter Leak Testing	Photometer	Air Techniques	TDA-2E				
			Generator	Air Techniques	TDA-5B	N/A	N/A
			TDA-6A		N/A	N/A	
PSL Leak Testing	PSL Generator / DI Water Fogger	Cleanroom Sciences	µS-25K-1		N/A	N/A	
			Sunbeam	KUH-15/894		N/A	N/A
			MESA3	PDC-1			
Lighting Level (Intensity)	Light Illumination Meter	Exttech	K81792				
Lighting Spectrum	Radiometer	UVP	UVX				
Sound Pressure Level	Sound Level Meter	Simpson	Model 888, Filters 888, Calif 890				
Electromagnetic Interference (EMI)	Magnelic Field Test Kit	Holaday	3604				
Electric Space Charge	Ion Density Meter	Semtronics	EN180				
	Charge Plate Monitor	NiStat	210				
Floor Conductivity	Conductive Meter	Biddle	Mark IV				
Compressed Gas Properties	Compressed Gas Tester	Draeger	Aerotest # E1-1A001-E4-10		N/A	N/A	
Oil, Moisture, CO, CO ₂ , NO, NO ₂ , SO ₂					N/A	N/A	
Compressed Gas Particulates	Particulate Sampling Chamber	MESA3	PSC-1				
Compressed Gas Dew Point	Compressed Gas Dew Point Monitor	Hydrodynamics	8092				

Note: Refer to the individual test sheets for a record of the exact instrumentation used during each test as identified by the "MESA3 EQ #".

Prepared By LN Reviewed By [Signature] Date 6/24/00



Test Procedure Notice

Section 1 Item 3 Page 1 of 1

1. INDUSTRY PROCEDURES

The following information is applicable if any of the test documents contained within this report indicate that the services were performed in accordance with an industry standard, procedure, recommended practice or guideline.

- 1.1. Copies of industry documents may be purchased from the publishing association or group. Feel free to contact MESA3 for the address and phone numbers of any association of interest.
- 1.2. Abbreviations for issuing agencies, which MESA3 frequently reference are as follows.
 - 1.2.1. NEBB-TAB National Environmental Balancing Bureau
Testing, Adjusting and Balancing Standards
 - 1.2.2. NEBB-CPT National Environmental Balancing Bureau
Cleanroom Performance Testing Standards
 - 1.2.3. IES-RP-CC Institute of Environmental Sciences
Recommended Practice - Contamination Control
 - 1.2.4. NSF-49 National Sanitation Foundation - Class II Biosafety Cabinetry
 - 1.2.5. ASHRAE American Society of Heating, Refrigeration and Air Conditioning
Engineers guidelines
 - 1.2.6. SMACNA Sheet Metal and Air Conditioning Contractors National Association

2. PROJECT SOP'S

The following information is applicable if any of the test documents contained within this report indicate that the services were performed in accordance with a "Project SOP" or "Project Procedure".

- 2.1. If formal "project specific" procedures were developed by MESA3 for use in MESA3's execution of services associated with this project, even if these procedures were disseminated during the course of the project or have been included in this final report, MESA3 retains the copyright ownership to all such procedures.
- 2.2. If procedures were developed by MESA3 specifically for use by the Client, these documents shall bear the Client's name and only mention MESA3 under a "prepared by" caption. These documents are the property of the Client.

3. MESA3 SOP'S

The following information is applicable if any of the test documents contained within this report indicate that the services were performed in accordance with a MESA3 SOP (Standard Operating Procedure).

- 3.1. MESA3 SOP's are created by MESA3, at MESA3's sole expense, for the sole purpose of being used by MESA3 employees in performing company related services and is the intellectual property of MESA3 with all rights reserved.
- 3.2. Due to the trade secret nature of these controlled documents, they are considered PROPRIETARY AND CONFIDENTIAL by MESA3. They shall not be copied or disclosed in any manner either in whole or in part in any way, shape or form to any person other than to MESA3 employees for any reason whatsoever without the prior expressed written consent of the President of MESA3 with the exception that the copying or disclosing of the "Page 0 Confidentiality Notice" of any MESA3 SOP to either the Client or the Client's duly appointed Representative shall be allowed.
- 3.3. Any MESA3 client who wishes to perform a Quality Assurance (QA) Audit of a MESA3 SOP procedure referenced within this report may do so provided the following conditions are met.
 - 3.3.1. The QA Audit shall be scheduled in advance with the President of MESA3. It can be performed at either MESA3's main office or at any site of the Client's choosing within 50 miles of MESA3's main office at no charge. A QA Audit performed at a site greater than 50 miles from MESA3's office can be accommodated so long as the Client compensates MESA3 for reasonable travel expenses.
 - 3.3.2. The personnel performing the QA Audit shall be either direct employees of the Client and be charged with QA activities for the client, or shall be employees of a government regulatory agency, which is performing a QA Audit of the Client's operations.
 - 3.3.3. The QA Audit personnel shall execute a confidentiality agreement as prepared by MESA3 prior to conducting the audit. This agreement shall primarily stipulate that the QA Auditors agree not to discuss or disseminate the contents of this MESA3 procedure in whole or in part in any way, shape or form; except that they shall be free to disclose the results and conclusions of their QA Audit with other QA employees of the client and/or to the employees of government regulatory agencies so long as they inform the recipient of the proprietary and confidential nature of the MESA3 document that has been audited.



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Report Abbreviations

Section 1 Item 4 Page 1 of 1

General:

ASHRAE	American Society of Heating, Refrigeration & Air-Conditioning Engineers
DNA	Data Not Available
DNL	Data Not Listed
LOA	Lack Of Access
NA	Not Applicable
NEBB	National Environmental Balancing Bureau
NI	Not Installed
NIC	Not In Contract
NM	Not Measured
NVL	No Valid Location for testing

HVAC Air Balancing:

BH	Blo Hood
B.TRAV	Branch Traverse
CD	Ceiling Diffuser
CEF	Ceiling Exhaust Fan
CEG	Ceiling Exhaust Grille
CER	Ceiling Exhaust Register (w/ OBD)
CH	Canopy Hood
CRG	Ceiling Return Grille
CSR	Ceiling Supply Register (w/ OBD)
CRR	Ceiling Return Register (w/ OBD)
DD	Dual Duct Terminal Unit
DH	Ducted HEPA
FEG	Floor Exhaust Grille
FER	Floor Exhaust Register (w/ OBD)
FH	Flow Hood was used which measures CFM directly so that FPM & AK factors are not required.
FPH	Fan Powered HEPA
FRG	Floor Return Grille
FRR	Floor Return Register (w/ OBD)
FSR	Floor Supply Register (w/ OBD)
LCD	Linear Ceiling Diffuser
LH	Lab Hood
LSD	Linear Slot Diffuser
LWS	Linear Wall Supply
M.TRAV	Main Traverse
OA / OSA	Outside Air
OBD	Opposed Blade Damper
OPEN	Open Duct
PD	Pressure Dependent
PI	Pressure Independent
RA	Return Air
SA	Supply Air
SD	Single Duct Terminal Unit
TRAV	Traverse
WEG	Wall Exhaust Grille
WER	Wall Exhaust Register (w/ OBD)
WRG	Wall Return Grille
WRR	Wall Return Register (w/ OBD)
WSG	Wall Supply Grille
WSR	Wall Supply Register (w/ OBD)

HVAC Water Balancing:

BG-CS	Bell & Gossett - Circuit Setter
BG-TDV	Bell & Gossett - Triple Duty Valve
BG-CB	Bell & Gossett - Circuit Balance Valve
TA-CBV	Tour & Anderson - Circuit Balance Valve
Annu	Annubar flow measuring station

Cleanroom Performance Testing (Certification)

DOP	Diocetyl Phthalate
EMI	Electromagnetic Interference
IES	Institute of Environmental Sciences
NSF	National Sanitation Foundation
Particle	Non-viable or viable particulate
PSL	Polystyrene Latex spheres
PAO	Polyalphaolefin

Systems Commissioning

BA	Breathing Air
BSC	Building Systems Commissioning
BSCA	Building Systems Commissioning Administrator
CDA	Clean Dry Air
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
NO	Nitric Oxide
NO ₂	Nitrogen Dioxide
PPM	Parts Per Million
SO ₂	Sulfur Dioxide

Calibration Services

Component Cal	Calibration of a <u>single portion</u> of the measurement chain of events, typically includes recording of <u>transmitter signal</u> .
Loop Cal	Calibration of the <u>entire</u> measurement chain of events, typically includes recording of <u>indicated values</u> .
Component&Loop Cal	Simultaneous calibration of both a single portion of the measurement chain and the entire chain, typically includes recording of transmitter signal and indicated values.
Cal Sequence No.	ID number referring to the individual calibration number and total number of sequential calibrations which are or could be performed jointly to an individual instrument as part of an overall calibration plan. [i.e.: 3-Point Component Cal with adjustment (1 of 2), followed by 1-Point Loop Cal with no adjustment (2 of 2)].
Standard	Instrument used as reference during calibration procedure.
NIST	National Institute of Standards and Technology

Facility Validation

AC/H	Air Changes per Hour
cGCP	current Good Clinical Practices
cGLP	current Good Laboratory Practices
cGMP	current Good Manufacturing Practices
ISPE	International Society for Pharmaceutical Engineering
IQ	Installation Qualification
OQ	Operational Qualification
PQ	Performance Qualification



HVAC Balance Test Report #2301

8th Floor Remodel - May 2000
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Supply Fan

Fan: **FCU-1** Section: **2** Item: **1 Rev. 1** Page: **1 / 1**

Test Description				Design		Test # 1			Test # 4			Test # 5		
				Plans	Submit	PRELIMINARY			MIN OSA FINAL			FULL ECONO FINAL		
						05-12-00 MM			08-08-00 AH			08-08-00 AH		
Fan	Manufacturer					MAGIC AIRE								
	Model Number					60-BHW-4-A								
	Type or Size													
	Volume Control Type					NONE								
Motor	Manufacturer					DAYTON								
	HP	RPM-hi	RPM-lo	-	-	0.75	1725							
	Frame	Phase	SF			56	1	1.25						
	Volts					115	230							
	FLA					11.4	5.7							
	SFA					12.6	6.3							
Motor Sheave	Model or Size					1VP56			1VL44					
	Bore or Bushing					5/8								
	Adj. % of Max					0%			0%					
Fan Sheave	Model or Size					AK83								
	Bore or Bushing					3/4								
Number Belts	Belt Size					1	4L480		1	4L470				
Centerline	% of Max Adj.					14.4	0%		14.8	75%				
Volume Control	Set Point	Indicated	Actual			-	-	-	-	-	-	-	-	
	Position					NONE			NONE			NONE		
Tested RPM	Motor					1625			1716			1716		
	Fan					742			673			673		
Air Dist. Total	SACfm	% des.	2000			2,820	141%		2,192	110%		2,329	116%	
Fan Air Flows	SACfm	% des.	2000			2,820	141%		2,192	110%		2,329	116%	
	RAcfm	% SA	1600						1,739	79%		0	0%	
	OAcfm	% SA	400						453	21%		2,329	100%	
Discharge SP	ESP	TSP							0.056			0.050		
Suction SP	ESP	TSP							0.388			0.439		
Total Resistance	ESP	TSP							0.444			0.489		
ΔP's	Cooling Coil & Filter								0.273			0.270		
Volts	T1-T2	T1-T3	T2-T3			198.8			198.8			198.8		
Voltage Corrected FLA						6.59			6.59			6.59		
Amps	T1	T2	T3			5.5			3.8			3.8		
Approximate BHP						0.63			0.43			0.43		
No Load Amps (if overloaded)														



HVAC Balance Test Report #2301

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Economizer w/o EEF or RF Fan: FCU-1 Section: 2 Item: 2 Rev. 1 Page: 1 / 1

SA Full Demand Test

For determination of SA CFM/SP relationship

	Date & By:		05-12-00		MM					
	Design CFM	Test #1		Test #2		Test #3				
		Ref. SP	CFM	Ref. SP	CFM	Ref. SP	CFM			
SA under Full Demand		0.439	2,329							

100% OSA / 0% RA

For determination of RA CFM/SP relationship

	Date & By:		05-12-00		MM		08-08-00		AH	
	Design CFM	Test #1		Test #2		Test #3				
		Ref. SP	CFM	Ref. SP	CFM	Ref. SP	CFM			
SA under Full Demand		0.439	2,329	0.439	2,329					
Est. RA Damper Leakage %			16%		0%					
OSA		0.178	1,953		2,329					

Minimum Outside Air Mode

For final SA total & minimum OA adjustment

	Date & By:		05-12-00		MM		05-12-00		MM		08-08-00		AH	
	Design CFM	Test #1		Test #2		Test #4								
		Ref. SP	CFM	Ref. SP	CFM	Ref. SP	CFM	Ref. SP	CFM					
SA under Full Demand	2,000	0.427	2,297	0.410	2,251	0.388	2,192							
minimum OA	400	0.070	1,225	0.033	841	0.010	453							
RA	1,600		1,072		1,410		1,739							



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HVAC Balance Test Report #2301

8th Floor Remodel - May 2000
 AT&T Building A

Air Distribution

Fan System: **FCU-1**

Section: **2** Item: **3** Page: **1 / 1**

Register				Design		Date/By: 05-12-00 MM EQ# 231					Date/By: 05-12-00 MM EQ# 231					Note Code
I.D.	Type	Size or Model	Ak	FPM or AP	CFM	Test # 1 - PRELIMINARY					Test # 2 - FINAL					
						% Open	SP/VP	FPM/CFM _d	CFM _e	Analysis	% Open	SP/VP	FPM/CFM _d	CFM _e	Analysis	
1	CD	24x24			400	100%			619	155%	55%			461	115%	
2	CD	24x24			400	100%			559	140%	60%			459	115%	
3	CD	24x24			400	100%			431	ok	100%			487	122%	
4	CD	24x24			400	100%			450	113%	70%			462	116%	
5	CD	24x24			150	100%			243	162%	60%			174	116%	
6	CD	24x24			250	100%			518	207%	60%			286	114%	
FCU-1 SA	Total				2,000				2,820	141%				2,329	116%	
7	RA	24x24			1,600				376	24%				1,554	ok	
FCU-1 RA	Total				1,600				376	24%				1,554	ok	



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Drawing Name: Air Distribution					Drawing No. SK-1		
Facility: AT&T Building A - 8th Floor							
Rev. #	Date	By	Reviewed By	Rev. #	Date	By	Reviewed By
0	6/6/00	LN	GAD				

