

**National Science Foundation
Industry/University Cooperative Research Centers
Structural Information for 1988-1989
FINAL REPORT**

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**Department of Psychology
Human Resource Development
North Carolina State University
March 1990**

NOTE: Data in these tables were collected during 1988-89 from Center Directors.

TABLE 1
1988-1989 GENERAL INFORMATION

Status	Year Funded	University (Center)	Director's Name	# Depts. Involved ¹	
Self-sustaining	1979	Ohio State University (Center for Welding Research)	David W. Dickinson	3	
		Rensselaer Polytechnic Institute (Rensselaer Design Research Center)	Dr. Michael J. Wozny	5	
	1980	University of Massachusetts (Center for Research on Polymers)	Simon W. Kantor		
	1981	Case Western Reserve (Center for Applied Polymer Research)	Anne Hiltner		
	1982	Georgia Institute of Technology (Materials Handling Research Center)	I.W. Pence Jr.	5	
		North Carolina State University (Center for Communications & Signal Processing)	Arne A. Nilsson	2	
	1984	Pennsylvania State University (Center for Dielectric Studies)	Joseph P. Dougherty	4	
		Rutgers University (Center for Ceramics Research)	Dale E. Niesz	5	
		Colorado School of Mines (Steel Research Center)	George Krauss	4	
		New Jersey Institute of Technology (Center for Hazardous & Toxic Waste Management)	Richard S. Magee		
		Northeastern University (Center for Electromagnetics Research)	Michael B. Silwitch		
		Northwestern University (Center for Engineering Tribology)	Yip-Wah Chung	5	
		University of Arizona (Center for Microcontamination & Control)	John O'Hanlon		
		University of Arizona (Center for Optical Circuitry)	Hyat M. Gibbs	4	
		University of North Carolina/Duke University (Lymphocyte Technology Center)	Howard M. Reisner	4	
University of Washington (Center for Process Analytical Chemistry)		Bruce Kowalski & James Callis	5		
3-5 years old	1984	Lehigh University (Chemical Process Modeling & Control Research Center)	Christos Georgakis	1	
		Rutgers University (Center for Plastics Recycling Research)	Jack Wenzel	2	
	1985	Carnegie Mellon University (Center for Iron & Steelmaking Research)	R.J. Fruehan	4	
		Lehigh University (Center for Innovation Management Studies)	Dr. Alden S. Bean		
	1986	University of Tennessee (Measurement & Control Engineering Center)	E.C. Muly	6	
		University of Texas- Arlington (Center for Advanced Electron Devices and Systems)	Ronal L. Carter		
		University of Texas- San Antonio (Health Science Center)	Barbara D. Boyan	5	
		Alfred University (Center for Glass Research)	L. David Pye	5	
		New Mexico Institute of Mining & Technology (Research Center for Energetic Materials)	Per-Anders Persson	2	
		Oklahoma State University (Web Handling Research Center)	Karl N. Reid	5	
		University of California- Berkeley (Sensors & Actuators Centers)	Richard Muller & Richard White		
		University of Florida/Purdue University (Software Engineering Research Center) ²	Richard DeMillo	3	
	0-2 years old	1987	North Carolina State University (Center for Aseptic Processing & Packing Studies)	Dr. Stephen S. Yau	2
			University of Iowa (Center for Simulation & Design Optimization of Mechanical Systems)	Dr. K.R. Swartzel	3
			University of S. California/University of California- Los Angeles (Center for Manufacturing Automation)	Edward J. Haug	4
1988		University of Buffalo (SUNY) (Center for Biosurfaces)	G.A. Bekey & M.A. Melkanoff		
		University of Colorado (Microwave & Millimeter Computer-aided Design)	Dr. R. Baier & Dr. J. Gardella	7	
1989		Brown University/University of Rhode Island (Center for Thin Film & Interface Research) ³	David Chang	2	
		Georgia Institute of Technology/University of Arizona (Information Management Research Center)	Joseph Loferski & Shanka Mitra	7	
		Iowa State University (Center for Nondestructive Evaluation)	W. M. McCracken	4	
		University of California at San Diego (Center for Integrated Circuits & Systems)	Donald O. Thompson	4	
		University of Maryland (Center for Life Cycle Engineering)	Dr. Walter Ku		
University of New Mexico (Center for Micro- Engineered Ceramics)	Dr. Michael G. Pecht				
University of Pittsburgh (Parallel & Distributive Intelligence Systems Research Center)	Douglas M. Smith	5			
Washington State University (Center for Analog/ Digital Integrated Circuits)	Shi-kuo Chang	1			
		Yacov Shamash	3		

1 Data not available where there are blanks.

2 Data for this Center were reported for each individual center and are therefore listed separately.

3 Data for this center were reported together so appear as one listing.

TABLE 2
1988-1989 OPERATING BUDGET: BREAKDOWN OF
DIRECT FUNDING ^{1 a}

Status	Year	Abbreviated Name	Total Direct	NSF Funding	Industry Members Fees	Other Industry Funding	State Funding	Other Funding ²	University Direct Funds	University Returned Overhead ³
Self-sustaining	1979	Ohio State (Welding)								
		RPI (Computer Design)	1,083,949.00	62,422.00	622,097.00	377,763.00		12,015.00		9,652.00
	1980	Mass. (Polymers)	613,833.00	47,833.00	411,600.00					154,400.00
	1981	Case Western (Polymers)								
	1982	Georgia Tech. (Materials Handling)	1,020,000.00	80,000.00			600,000.00			340,000.00
		NCSU (Communication/Signal Proc.)	675,400.00	5,400.00	450,000.00	220,000.00				
		Penn. State (Dielectrics Studies)	476,050.00	4,050.00	209,000.00	120,000.00	50,000.00		93,000.00	
		Rutgers (Ceramics)	1,870,092.00	198,171.00	574,368.00	412,674.00	2,030.00	389,407.00	174,255.00	91,617.00
	1984	Arizona (Microcontamination)							215,335.00	
		Arizona (Optical)	675,000.00	50,000.00	450,000.00		175,000.00			
		Colorado School of Mines (Steel)	607,400.00	39,000.00	483,400.00	65,000.00		20,000.00		
		NJIT (Hazardous Waste Mgmt.)	6,511,528.00	385,897.00	552,660.00	437,176.00	2,988,634.00	2,147,161.00		
		Northeastern (Electromagnetics)	954,325.00	105,000.00	695,000.00				154,325.00	
		Northwestern (Engineering Tribology)	620,000.00	50,000.00	300,000.00	180,000.00			20,000.00	
		UNC/Duke (Lymphocyte Technology)	320,000.00	50,000.00	120,000.00				150,000.00	
	Washington (Process Analytical Chem.)	1,226,685.00	122,903.00	939,630.00	12,000.00	100,000.00		52,152.00		
	Average for Self-sustaining:	1,281,097.08	92,359.69	483,979.58	228,076.63	652,610.67	464,763.83	118,177.83	148,917.25	
3-5 years old	1984	Lehigh (Chemical Process)	602,542.00	61,114.00	390,000.00	51,245.00	52,000.00	47,000.00	1,000.00	
		Rutgers (Plastics)	1,714,157.00	64,014.00	637,592.00	181,951.00	700,000.00			130,600.00
	1985	Carnegie Mellon (Iron & Steel)								
		Lehigh (Innovation)	246,184.00	32,684.00	187,500.00	25,000.00			1,000.00	
		Tennessee (Measurement & Control)	785,000.00	100,000.00	425,000.00	40,000.00		100,000.00	50,000.00	70,000.00
		Texas- Arlington (Adv. Electron Devices)	363,897.00	55,000.00	200,000.00				108,897.00	
		Texas- San Antonio (Health Science)	1,318,132.00	39,889.00	525,000.00	517,243.00		5,000.00	231,000.00	
	1986	Alfred (Glass)	530,000.00	145,000.00	245,000.00		60,000.00			80,000.00
		Calif.-Berkeley (Sensors & Actuators)	1,043,750.00	125,000.00	774,422.00	20,000.00	52,750.00	46,000.00		
		Florida/Purdue (Software Eng.)	210,000.00	50,000.00	120,000.00					40,000.00
		339,959.00	37,931.00	192,000.00		60,000.00		24,000.00	26,028.00	
	New Mexico Inst. (Energetic)	438,359.00	76,336.00	313,931.00				48,092.00		
	Oklahoma State (Web Handling)	801,100.00	80,000.00	362,500.00	44,000.00	60,000.00	240,000.00	14,600.00	0.00	
	Average for 3-5 years old:	699,423.33	72,247.33	364,412.08	125,634.14	164,125.00	87,600.00	59,823.63	57,771.33	
0-2 years old	1987	Iowa (Simulation & Design)	2,196,544.00	57,544.00	1,000,000.00		150,000.00	856,000.00	133,000.00	
		NCSU (Aseptic Processing)	360,817.00	52,817.00	280,000.00	28,000.00				
		S. California (Manufacturing)	1,012,174.00	334,986.00	608,695.00			68,493.00		
	1988	Colorado (Microwave)	606,404.00	58,771.00	546,250.00	0.00	0.00	0.00	0.00	1,383.00
		SUNY at Buffalo (Biosurfaces)	473,668.00	71,813.00	105,261.00		160,434.00	35,087.00	100,000.00	1,073.00
	1989	Brown/Rhode Island (Film)	636,000.00	90,000.00	261,000.00	85,000.00	200,000.00			
		Iowa State (Nondestructive Evaluation)	1,056,645.00	41,045.00	665,000.00				350,600.00	
		New Mexico (Micro-Engineered Ceramics)	2,158,717.00	104,377.00	200,000.00	609,840.00	130,000.00	1,000,000.00	58,000.00	56,500.00
	Pittsburgh (Intelligence Systems)	136,000.00	36,000.00	100,000.00						
	Average for 0-2 years old:	959,663.22	94,150.33	418,467.33	180,710.00	128,086.80	391,916.00	128,320.00	19,652.00	

1 Budget Data are only available at the first year anniversary. Therefore, budget data are not provided for Georgia Tech/Arizona, California-San Diego, Maryland, and Washington State.

a Averages are based on available data.

2 Includes grants and awards from other sources (e.g., DOD, foundations, etc.).

3 Overhead collected from members which is returned to center.

TABLE 3
1988-1989 BUDGET FIGURES & CAPITAL FUNDING^{1 a}

Status	Year	Abbreviated Name	A Direct Funding	B Overhead Charges	C Total Budget (A + B)	D University Waived Overhead ²	Effective Budget ³ (C + D)	Capital Total Funding ⁴	NSF Overhead (%)	Industry Overhead (%)
Self-sustaining	1979	Ohio State (Welding)			530,000.00		530,000.00	0.00	45.0%	0.0%
		RPI (Computer Design)	1,083,949.00	204,067.00	1,278,365.00		1,278,365.00	0.00	58.5%	7.5%
	1980	Mass. (Polymers)	613,833.00	220,717.00	680,150.00		680,150.00	56,000,000.00	52.0%	50.0%
		Case Western (Polymers)								
	1981	Georgia Tech. (Materials Handling)	1,020,000.00		1,570,000.00	5,000.00	1,575,000.00	20,000.00	60.0%	62.5%
		NCSU (Communication/Signal Proc.)	675,400.00		675,400.00	308,000.00	978,000.00	0.00	46.0%	0.0%
	1982	Penn. State (Dielectrics Studies)	476,050.00	180,950.00	657,000.00		657,000.00	0.00	46.0%	46.0%
		Rutgers (Ceramics)	1,870,092.00	705,782.00	2,484,257.00	741,463.00	3,225,720.00	14,154,000.00	65.0%	65.0%
	1984	Arizona (Microcontamination)			599,185.00		599,185.00			
		Arizona (Optical)	675,000.00	130,000.00	805,000.00		805,000.00		49.0%	49.0%
		Colorado School of Mines (Steel)	607,400.00	102,600.00	710,000.00		710,000.00	150,000.00	65.0%	18.0%
		NJIT (Hazardous Waste Mgmt.)	6,511,528.00	652,209.00	7,163,737.00	959,548.00	8,123,285.00	0.00		
		Northeastern (Electromagnetics)	954,325.00	25,000.00	979,325.00	430,900.00	1,410,225.00	0.00		
		Northwestern (Engineering Tribology)	620,000.00	180,000.00	800,000.00	120,000.00	920,000.00	82,000.00	51.0%	10.0%
		UNC/Duke (Lymphocyte Technology)	320,000.00	50,000.00	370,000.00		370,000.00		47.0%	20.0%
		Washington (Process Analytical Chem.)	1,226,685.00	361,906.00	1,588,591.00		1,588,591.00	175,000.00	51.0%	51.0%
		Average for Self-sustaining:	1,281,097.08	255,748.27	1,392,734.00	427,485.17	1,563,368.07	5,881,750.00	53.0%	31.6%
3-5 years old	1984	Lehigh (Chemical Process)	602,542.00	45,740.00	648,282.00		648,282.00		55.0%	0.0%
		Rutgers (Plastics)	1,714,157.00	237,443.00	1,821,000.00	273,170.00	1,714,157.00	0.00	64.0%	64.0%
	1985	Carnegie Mellon (Iron & Steel)			625,000.00		625,000.00	30,000.00	55.0%	55.0%
		Lehigh (Innovation)	246,184.00	17,316.00	263,500.00	2,942.00	266,442.00		55.0%	0.0%
		Tennessee (Measurement & Control)	785,000.00	40,000.00	755,000.00	70,000.00	825,000.00	0.00	0.0%	0.0%
		Texas- Arlington (Adv. Electron Devices)	363,897.00		363,897.00	84,905.00	448,802.00		0.0%	0.0%
		Texas- San Antonio (Health Science)	1,318,132.00	53,235.00	1,384,967.00	181,035.00	1,566,002.00	0.00	45.0%	10.0%
	1986	Alfred (Glass)	530,000.00		530,000.00		530,000.00	0.00	79.1%	7.9%
		Calif.-Berkeley (Sensors & Actuators)	1,043,750.00	51,093.00	992,657.00	338,400.00	1,331,057.00		20.0%	50.0%
		Florida/Purdue (Software Eng.)	210,000.00		210,000.00		210,000.00		49.0%	25.0%
			339,959.00	65,069.00	405,028.00	65,400.00	470,428.00	150,000.00	45.0%	25.0%
		New Mexico Inst. (Energetic)	438,359.00	120,983.00	559,342.00		559,342.00		31.0%	31.0%
		Oklahoma State (Web Handling)	801,100.00		801,100.00	148,800.00	949,900.00	160,000.00	42.0%	0.0%
	Average for 3-5 years old:	699,423.33	78,859.88	719,982.54	145,581.50	780,339.38	48,571.43	41.5%	20.6%	
0-2 years old	1987	Iowa (Simulation & Design)	2,196,544.00	22,446.00	2,219,000.00	618,015.00	2,837,015.00	120,000.00	39.0%	0.0%
		NCSU (Aseptic Processing)	360,817.00	22,183.00	383,000.00	160,860.00	543,860.00		42.0%	0.0%
		S. California (Manufacturing)	1,012,174.00	185,826.00	1,200,000.00	10,715.00	1,210,715.00			
	1988	Colorado (Microwave)	606,404.00	49,979.00	655,000.00	34,243.00	689,243.00		41.8%	5.0%
		SUNY at Buffalo (Biosurfaces)	473,668.00	47,405.00	520,000.00	45,000.00	565,000.00		52.7%	14.0%
	1989	Brown/Rhode Island (Film)	636,000.00	48,000.00	684,000.00	195,000.00	879,000.00	1,000,000.00	10.0%	10.0%
		Iowa State (Nondestructive Evaluation)	1,056,645.00	13,955.00	1,070,600.00	226,100.00	1,296,700.00	0.00	34.0%	0.0%
		New Mexico (Micro-Engineered Ceramics)	2,158,717.00	50,623.00	2,152,840.00		2,152,840.00	2,005,000.00	48.5%	0.0%
		Pittsburgh (Intelligence Systems)	136,000.00	39,000.00	175,000.00		175,000.00		43.0%	20.0%
		Average for 0-2 years old:	959,663.22	53,268.56	1,006,604.44	184,276.14	1,149,930.33	781,250.00	38.9%	6.1%

1 Budget Data are only available at the first year anniversary. Therefore, budget data are not provided for Georgia Tech/Arizona, California-San Diego, Maryland and Washington State.

a Averages are based on available data.

2 Value of normal overhead university has not charged industry.

3 Value of center's budget if full overhead were collected.

4 Some entries represent major capital investments (e.g., buildings), normally amortized over a number of years.

TABLE 4
INDUSTRY MEMBERSHIP DESCRIPTORS ^{1 a}

Status	Year	Abbreviated Name	1988-1989				Lifetime			Annual Membership Fee	
			Current Members	Original Members	New Members	Members Left	Original Members	New Members	Members Left		
Self-sustaining	1979	Ohio State (Welding)									
		RPI (Computer Design)	36	34	2	0	5	59	28	50,000 ^b	
	1980	Mass. (Polymers)	17	18	2	3	13	17	13	40,000	
		Case Western (Polymers)									
	1981	Georgia Tech. (Materials Handling)	24	24	0	0	24	0	0	40,000	
		NCSU (Communication/Signal Proc.)	9	0	0	0	8	9	8	50,000	
	1982	Penn. State (Dielectrics Studies)	19	17	5	3	19	18	18	20,000 ^b	
		Rutgers (Ceramics)	15	20	2	7	10	37	22	35,000	
	1984	Arizona (Microcontamination)									
		Arizona (Optical)	10	10	2	2	8	6	4	50,000	
		Colorado School of Mines (Steel)	18	13	6	1	7	15	4	35,000	
		NJIT (Hazardous Waste Mgmt.)	29	25	6	2	8	24	3		
		Northeastern (Electromagnetics)	12	13	0	1	0	0	1		
		Northwestern (Engineering Tribology)	12	12	0	0	14	4	6	27,500	
		UNC/Duke (Lymphocyte Technology)	2	2	0	0	5	0	3	75,000	
		Washington (Process Analytical Chem.)	47	42	7	2	17	40	10	30,000	
		Average for Self-sustaining:			19	18	2	2	11	18	9
3-5 years old		1984	Lehigh (Chemical Process)	11	11	0	0	4	10	3	25,000 ^b
	Rutgers (Plastics)		50	47	4	1	15	36	1	50,000 ^b	
	1985	Carnegie Mellon (Iron & Steel)	22	20	2	0	11	13	2	40,000 ^b	
		Lehigh (Innovation)	15	0	3	1	16	1	4	12,500	
	1986	Tennessee (Measurement & Control)	12	10	3	1	4	10	2	35,000 ^b	
		Texas- Arlington (Adv. Electron Devices)	1	0	1	0	6	1	2	50,000 ^b	
		Texas- San Antonio (Health Science)	7	4	3	0	3	4	0	75,000	
		Alfred (Glass)	16	0	1	0	6	10	1	25,000	
		Calif.-Berkeley (Sensors & Actuators)	20	14	7	1	8	13	1		
		Florida/Purdue (Software Eng.)	16	15	3	2	15	3	0	30,000	
		New Mexico Inst. (Energetic)	16	16	1	1	13	5	2	30,000	
	Oklahoma State (Web Handling)	13	12	1	0	9	4	0	30,000		
	Average for 3-5 years old:			17	11	2	1	9	9	1	35,625
	0-2 years old	1987	Iowa (Simulation & Design)	26	21	7	2	21	3	2	40,000
			NCSU (Aseptic Processing)	8	8	0	0	8	7	0	35,000
S. California (Manufacturing)			7	6	1	0	4	0	0		
1988		Colorado (Microwave)	12	11	2	1	10	3	1	50,000	
		SUNY at Buffalo (Biosurfaces)	6	4	2	0	0	0	0	40,000	
1989		Brown/Rhode Island (Film)	14	13	1	0	13	0	0	25,000 ^b	
		Calif.- San Diego (Integrated Circuits)									
		Ga. Tech./Arizona (Information Mgmt.)	7	7	0	0	7	0	0	40,000	
		Iowa State (Nondestructive Evaluation)	19	16	3	0	13	0	0	35,000	
		Maryland (Life Cycle Engineering)									
		New Mexico (Micro-Engineered Ceramics)	8	8	0	0	8	0	0	30,000 ^b	
		Pittsburgh (Intelligence Systems)	6	2	4	0	0	0	0	25,000 ^b	
		Washington State (Integrated Circuits)	12	12	0	0	12	0	0	30,000	
Average for 0-2 years old:			11	10	2	0	9	1	0	35,000	

¹ Data not available where there are blanks.

^a Averages are based on available data.

^b Variable membership fee

Structural Information for 1988-1989:
Gray and Holden

TABLE 5
HUMAN RESOURCES^{1 a}

Status	Year	Abbreviated Name	Researcher Breakdown				Students		Administrative Staff			
			Total # of Researchers	# Faculty Scientist	# FT Non-Fac	# PT Non-Fac	# of Graduate	# of Undergrad	Prof ²		Sec ³	
									# of FT	# of PT	# of FT	# of PT
Self-sustaining	1979	Ohio State (Welding)	11	9	2	0	30	0	1	0	10	1
		RPI (Computer Design)	18	8	10	0	38	6	1	0	3	6
	1980	Mass. (Polymers)	17	15	2	0	18	1	1	0	1	0
	1981	Case Western (Polymers)										
	1982	Georgia Tech. (Materials Handling)	20	20	0	0	43	0	1	1	3	1
		NCSU (Communication/Signal Proc.)	18	16	2	0	32	0	0	0	2	0
		Penn. State (Dielectrics Studies)	23	18	0	5	16	5	0	1	0	1
		Rutgers (Ceramics)	65	20	20	25	28	85	4	0	4	0
	1984	Arizona (Microcontamination)										
		Arizona (Optical)	24	8	4	0	10	2	0	1	0	1
		Colorado School of Mines (Steel)	8	7	0	1	15	3	0	1	0	1
		NJIT (Hazardous Waste Mgmt.)	60	55	5	0	70	6	3	0	3	0
		Northeastern (Electromagnetics)	27	13	14	0	26	10	2	0	3	2
		Northwestern (Engineering Tribology)	12	6	6	0	12	0	1	0	1	1
		UNC/Duke (Lymphocyte Technology)	14	8	0	6	8	2	0	1	0	1
		Washington (Process Analytical Chem.)	13	10	3	0	25	2	4	2	3	6
	Average for Self-sustaining:	24	15	5	3	27	9	1	1	2	2	
3-5 years old	1984	Lehigh (Chemical Process)	14	7	0	7	11	0	1	0	1	1
		Rutgers (Plastics)	20	17	3	0	8	12	3	1	5	2
	1985	Carnegie Mellon (Iron & Steel)	9	6	3	0	5	2	0	1	1	0
		Lehigh (Innovation)	26	25	0	1	2	1	0	3	1	2
		Tennessee (Measurement & Control)	12	10	0	2	18	8	0	1	1	0
		Texas- Arlington (Adv. Electron Devices)	6	5	1	0	12	4	1	0	1	3
		Texas- San Antonio (Health Science)	21	16	5	0	9	12	2	0	3	0
	1986	Alfred (Glass)	15	12	0	3	12	4	0	0	0	1
		Calif.-Berkeley (Sensors & Actuators)	6	5	1	0	25	4	0	4	0	2
		Florida/Purdue (Software Eng.)	13	12	1	0	14	2	1	1	1	0
			7	7	0	0	7	2	0	2	1	
		New Mexico Inst. (Energetic)	8	2	0	6	5	7	0	3	0	4
	Oklahoma State (Web Handling)	43	13	1	1	24	4	0	1	0	4	
	Average for 3-5 years old:	15	11	1	2	12	5	1	1	1	2	
0-2 years old	1987	Iowa (Simulation & Design)	26	10	15	1	44	9	3	0	3	3
		NCSU (Aseptic Processing)	22	16	6	0	4	2	0	1	0	1
		S. California (Manufacturing)	12	10	1	1	12	1	0	2	0	2
	1988	Colorado (Microwave)	30	7	5	0	14	4	2	0	0	1
		SUNY at Buffalo (Biosurfaces)	15	12	3	0	12	3	4	0	1	0
	1989	Brown/Rhode Island (Film)	7	7	0	0	3	2	0	2	0	2
		Calif.- San Diego (Integrated Circuits)										
		Ga. Tech./Arizona (Information Mgmt.)	12	10	2	0	10	1	1	0	1	0
		Iowa State (Nondestructive Evaluation)	20	11	0	9	20	4	0	5	3	1
		Maryland (Life Cycle Engineering)										
		New Mexico (Micro-Engineered Ceramics)	21	13	8	0	20	5	0	1	2	0
		Pittsburgh (Intelligence Systems)	4	3	0	1	1	0	0	2	0	1
		Washington State (Integrated Circuits)	12	12	0	0	16	2	0	2	1	1
		Average for 0-2 years old:	16	10	4	1	14	3	1	1	1	1

1 Data not available where there are blanks.

a Averages are based on available data.

2 Prof= Professional Staff

3 Sec= Secretarial Staff

Structural Information for 1988-1989:
Gray and Holden

TABLE 6
CENTER DIRECTOR DESCRIPTORS ^{1 a}

Status	Year	Abbreviated Name	Director's Rank	Director Tenured or Tenure	Director Reports To	Time Allocation ²					Admin % of ³ Total	
						% Center Admin	% Other Admin	% Research	% Teaching	% Other		
Self-sustaining	1979	Ohio State (Welding)	Professor	Yes	Dean	10	30	20	30	10	0	
		RPI (Computer Design)	Professor	Yes	Dean	30	0	45	25	0	12	
	1980	Mass. (Polymers)				50	15	35	0	0	15	
		Case Western (Polymers)										
	1982	Georgia Tech. (Materials Handling)	Director	No	V-Pres.	80	5	5	0	10	10	
		NCSU (Communication/Signal Proc.)	Professor	Yes	Dean	50	0	10	40	0	20	
	1981	Penn. State (Dielectrics Studies)	Sr. Researcher	No	Director	40	0	60	0	0	14	
		Rutgers (Ceramics)	Professor	Yes	Director	75	0	20	5	0	65	
	1984	Arizona (Microcontamination)										
		Arizona (Optical)	Professor	Yes	Director	40	20	40	0	0	15	
		Colorado School of Mines (Steel)	Professor	Yes	Dept. Head	25	0	50	25	0	10	
		NJIT (Hazardous Waste Mgmt.)				50	50	0	0	0	16	
		Northeastern (Electromagnetics)				12	0	33	55	0	18	
		Northwestern (Engineering Tribology)	Professor	Yes	Dean	25	10	25	40	0	10	
UNC/Duke (Lymphocyte Technology)		Assoc. Prof.	Yes	President	15	5	50	30	0	12		
Washington (Process Analytical Chem.)		Professor	Yes	Dept. Head	10	10	50	20	10	41		
Average for Self-sustaining:						37	10	32	19	2	18	
3-5 years old	1984	Lehigh (Chemical Process)	Professor	Yes	Dean	10	0	20	70	0	23	
		Rutgers (Plastics)	Professor	Yes	Director	40	25	10	20	5	18	
	1985	Carnegie Mellon (Iron & Steel)	Professor	Yes	Dean	20	0	60	20	0	8	
		Lehigh (Innovation)	Professor	Yes	Dean	45	40	5	5	5	20	
	1986	Tennessee (Measurement & Control)	Director	No	Dean	90	0	10	0	0	19	
		Texas- Arlington (Adv. Electron Devices)	Professor	Yes	Dept. Head	40	30	20	20	0	51	
	1986	Texas- San Antonio (Health Science)	Professor	Yes	Dean	20	5	65	10	0	18	
		Alfred (Glass)	Professor	Yes	Dean	70	0	20	10	0	100	
		Calif.-Berkeley (Sensors & Actuators)	Co-Director			20	5	30	40	5	22	
		Florida/Purdue (Software Eng.)	Professor	Yes	Dean	43	0	57	0	0	35	
		New Mexico Inst. (Energetic)	Professor	No	V-Pres.	20	20	40	10	10	20	
		Oklahoma State (Web Handling)	Professor	Yes	V-Pres.	20	70	10	0	0	5	
	Average for 3-5 years old:						36	19	27	16	3	28
	0-2 years old	1987	Iowa (Simulation & Design)	Professor	Yes	Dean	40	10	25	25	0	8
NCSU (Aseptic Processing)			Professor	Yes	Dept. Head	61	0	19	20	0	11	
S. California (Manufacturing)						10	50	20	0	20	4	
1988		Colorado (Microwave)	Professor	Yes	Dean	20	20	40	20	0	33	
		SUNY at Buffalo (Biosurfaces)	Co-Directors	Yes	Vice Provost	20	20	20	20	20	19	
1989		Brown/Rhode Island (Film)	Professor	Yes	Dean	25	0	25	50	0	10	
		Calif.- San Diego (Integrated Circuits)										
		Ga. Tech./Arizona (Information Mgmt.)	Sr. Researcher	No	V-Pres.	20	20	50	10	0		
		Iowa State (Nondestructive Evaluation)	Professor	Yes	Director	25	35	15	0	15	16	
		Maryland (Life Cycle Engineering)										
		New Mexico (Micro-Engineered Ceramics)	Professor	Yes	V-Pres.	40	0	35	25	0	10	
		Pittsburgh (Intelligence Systems)	Professor	Yes	Dean	10	0	0	0	90	10	
Washington State (Integrated Circuits)		Professor	Yes	Dean	35	55	10	0	0	22		
Average for 0-2 years old:						28	19	24	15	13	14	

1 Data not available where there are blanks.

a Averages are based on available data.

2 Allocation of director's full-time equivalent for budgetary purposes.

3 Estimated percentage of direct budget allocated to administrative salaries, center supplies, telephone, travel and related costs.