# STEM RESEARCH AND CLASSROOM BUILDING

UNIVERSITY OF MEMPHIS APPENDIX FISCAL YEAR 2020/2021



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# LETTER FROM PRESIDENT RUDD

July 1, 2019

Mike Krause Executive Director Tennessee Higher Education Commission 404 James Robertson Parkway, Suite 1900 Nashville, TN 37243

Dear Director Krause,

Thank you for THEC's consideration of the University of Memphis' request for funding for a new, state-of-the-art STEM Research and Classroom Building (SRCB). The construction of the SRCB is the University's top funding priority for the 2019-20 fiscal year. The facility is critical to accomplishing the University's goal of obtaining a Carnegie R1 designation for robust, cuttingedge research activity.

The UofM is experiencing significant momentum in our STEM disciplines. Last year, we witnessed \$65.6 million in research expenditures and record-setting patent and licensing activity. Our research is lauded by the National Science Foundation, National Institutes of Health, U.S. Department of Defense, U.S. Department of Transportation, and numerous other public and private entities. We have established groundbreaking new partnerships with government and industry to advance research and develop new solutions.

As we continue to grow in the STEM areas, the University has maximized our space resources. The SRCB will provide vital active learning classrooms, research labs and learning hubs for students from both the Herff College of Engineering and the College of Arts & Sciences that leverage innovative technology and adapt to changing industry demands. The building will also streamline faculty offices from relevant departments, helping students connect seamlessly with professors and staff.

I hope THEC will recommend funding for the SRCB, which complements Governor Lee's aim to place Tennessee in the top 25 states for job creation in the STEM sector by 2022. Should you have any questions about this project, please do not hesitate to contact me. I welcome the opportunity to further discuss the need for and anticipated impact of this important project.

Sincerely,

Dr. M. David Rudd

President and Distinguished University Professor

**APPENDIX A** 

# INSTITUTIONAL MISSION PROFILE



The University of Memphis is a comprehensive, internationally recognized, urban public research university preparing students for success in a diverse, innovative, global environment. The University is classified as Doctoral: Higher Research (R2) and Community Engaged per the Carnegie Classification for Institutions of Higher Learning. The UofM is dedicated to providing the highest quality of education to its 21,500 students through 13 colleges and schools that offer 139 academic degree programs at the undergraduate, masters, doctoral and professional levels. The UofM awards more than 4,300 degrees annually. Talented and innovative faculty have developed 21 undergraduate and 21 graduate programs in various disciplines that are ranked in the Top 25 nationally. With a focus on research and service benefitting communities and society, local and global, we are home to nationally designated centers of excellence in cybersecurity research and education, transportation workforce development, and mobile health big data as well as five Tennessee centers of research excellence. Our metropolitan setting has enabled us to build a nationally-ranked internship program that facilitates the placement of undergraduate and graduate students throughout the community in nonprofit and for-profit organizations that specialize in healthcare, government, transportation and logistics, music and entertainment, medical devices, banking and the arts. Student success, service, innovation, collaboration, diversity and inclusion, and accountability are core values at the University of Memphis.

Approved by UofM Board of Trustees, March 2019

# 2019 THEC SPACE ALLOCATION REPORT

**THEC - Space Allocation Guidelines** 

**Data Input and Calculation Spreadsheet - UT and TBR Universities** 

2019

Name of Institution: The University of Memphis
Date of Data: 6/20/19

Change shaded cells only:

blue Data inputs (institutions)
salmon Guidelines / planning inputs (THEC)

NASF totals rounded up to next whole square foot.

Part I – Classrooms				
		Weekly CR		
Class Size	# of sections	Hours		
1-8	177	500		
9-14	222	597		
15-20	304	772		
21-26	307	869		
27-32	129	355		
33-47	248	690		
48-74	128	335		
75-126	87	242		
127+	43	117		

Sta util = 60% (	(fixed)	Hrs per week:	30	Institutions en	ter 30 hrs for Day session or 17 for Evening.
Classroom			Number of		
Stations	NASF / Sta	NASF per CR	CRs	Total NASF	
12	26	312	17	5,304	
20	25	500	20	10,000	
30	21	630	26	16,380	
40	18	720	29	20,880	
50	18	900	12	10,800	
60	18	1,080	23	24,840	
100	17	1,700	12	20,400	
150	16	2,400	9	21,600	
275	14	3,850	4	15,400	
		T	otal CR NASF:	145,604	

Part II - Scheduled Labs and Studios Lower Div (100+200 level)						
Discipline	# of sections	Weekly Lab Hours	Total Enrollment			
A	# 01 Sections	Hours	Enronment			
В	12	33	170			
С	105	233	2,164			
D	111	345	3,019			
E	12	32	422			

Sta utii:	80%		Hrs per week:	20	
Mean Section	Stations per			Number of	
Size	Lab	NASF / Sta	NASF per Lab	Labs	Total NASF
0.0	0	150	0	0	0
14.0	18	100	1,800	2	3,600
21.0	27	75	2,025	12	24,300
27.0	34	60	2,040	18	36,720
35.0	44	40	1,760	2	3,520
			Total Lower	Div Lab NASF:	68,140

Upper Div + Grad (300+ level)						
		Weekly Lab	Total			
Discipline	# of sections	Hours	Enrollment			
A	6	12	67			
В	24	74	264			
C	168	515	1,499			
D	70	299	931			
E	7	16	46			

Sta util:	75%		Hrs per week:	15	
Mean Section	Stations per			Number of	
Size	Lab	NASF / Sta	NASF per Lab	Labs	Total NASF
11.0	15	150	2,250	1	2,250
11.0	15	100	1,500	5	7,500
9.0	12	75	900	35	31,500
13.0	18	60	1,080	20	21,600
7.0	10	40	400	2	800
			Total Upper	Div Lab NASF:	63,650

Part III - Open Labs, Studios, Collaboration				
Student enrollment (FTE)	19,987			

Part IVa Research – by Res Expenditure				
	3-year Average Research			
	Expenditure \$			
Discipline	On-campus	Off-campus		
A	\$6,969,438			
_				

В	\$9,306,090	
C	\$31,750,605	
_		

		•			
Inflati	ion since 2011:	0%		NASF	
		Inflation-	On-campus	Off-campus	
		Adjusted	Factor	Factor	
	NASF/\$1M	NASF/\$1M	100%	25%	Total NASF

NASF / FTE Total NASF

			•	
	Tota	l Research Lab	NASF by Res\$:	0
3,600	3,600	114,302	0	114,303
5,400	5,400	50,253	0	50,253
6,600	6,600	45,998	0	45,999

2,700	2,700	0	0	0
	Total I	Research Office	NASF by Res\$:	0

Part IVb Research – by Research FTE						
Indicate FTE by Teaching Load or Contract: Contract						
Personnel		Discipline (	Group – FTE			
Category	A	В	С	D		
Faculty	44.1	99.0	326.0	271.0		
PhD, Post Doc	5.0	3.0	3.0	0.0		
Non-Faculty	90.0	22.0	62.0	20.0		
GRA/GTA	32.5	62.0	172.5	78.0		
Undergrad						
Vis / Adj		1.0	4.0	3.0		

Support Allocations: 40%

#### Research Lab

	Resea	rch Lab NASF	/ FTE	Research Lab	Lab Support	Total Lab +
	A	В	C	NASF	NASF	Supt NASF
	600	450	300	168,810	50,627	219,437
	300	225	150	2,625	949	3,574
	300	225	150	41,250	14,858	56,108
	100	75	75	20,838	6,162	27,000
	50	50	50	0	0	0
	300	225	150	825	229	1,054
١.	40%	250/-	250/-			

Total Research Lab NASF by Research Personnel FTE: 307,173

Part V - Personnel Requiring an Office			
Personnel Category Total FTE			
President, Chancellor	1.0		
Provosts, Vice President	23.0		
Dean	14.0		
Assoc. Dean, Dept. Chair	22.0		
Professor, Assoc, Asst	736.0		
Other Faculty	246.0		
Professional Staff	853.0		
Clerical	219.0		
Staff, Technician	135.0		
GTA (Headcount)	553.0		
GRA (Headcount)	578.0		
Student, Clerical	799.0		
Other: Auditor, etc.			

NASF/FTE	Total NASF
350	350
240	5,520
180	2,520
150	3,300
150	110,400
100	24,600
130	110,890
120	26,280
100	13,500
60	33,180
40	23,120
40	31,960
100	0
Subtotal NASF:	385,620
30%	115,686

Support Allocation: Total Office NASF by FTE: 501,306

Research Offic			
Res Office NASF/FTE	Research	Office	Total Office +
D	Office NASF	Support NASF	Supt NASF
50	13,550	2,710	16,260
50	0	0	0
50	1,000	200	1,200
50	3,900	780	4,680
50	0	0	0
50	150	30	180
20%			

Tot Research Office NASF by Res Personnel FTE: 22,320

Part VI - Library	
Total vol and vol-equivalents	2,161,766
Tot vols in compact shelving	6,000
Cartographic collection	60,552
Student enrollment (FTE)	19,987
Stu living on campus (FTE)	

		NASF per	
	Volumes	Volume	Total NASF
First 150,000 Volumes:	150,000	0.10	15,000
Next 150,000 Volumes:	150,000	0.09	13,500
Next 300,000 Volumes:	300,000	0.08	24,000
Next 600,000 Volumes:	600,000	0.07	42,000
Next 1,200,000 Volumes:	955,766	0.06	57,346
Next 2,400,000 Volumes:	0	0.05	0
Above 4,800,000 Volumes:	0	0.04	0
Compact Shelving	6,000	0.03	180
Cartographic Collection	60,552	0.02	1,212
NASF for Volumes:			153,238

#### Number of Tables, Carrels, and Groups

	% of	Number of T,
_	Enrollment	C, & Gs
On-campus:	25.0%	0
Off-campus:	5.0%	1,000
T	otal T, C, & Gs:	1,000

#### NASF for Tables, Carrels, Groups

	% of T, C, &	Number of T,	NASF per	
	Gs	C, & Gs	Station	Total NASF
% Standard:	45%	450	25	11,250
% Enhanced / Group:	25%	250	35	8,750
% Reserved / Assignable:	20%	200	35	7,000
% Group Study:	10%	100	35	3,500
NASF for Readers:				30.500

#### Space for Technical Services

Sub-total Books and	183,738
Add'l NASF, % of Sub-total for Technical Services:	22,968
Total	206,706

Part VII - Physical Education and Recreation	
Student Enrollment (FTE)	19,987
Per-institution Minimum NASF, <4000 FTE Students:	40,800
Per-institution Minimum NASF, 4000+ FTE Students:	68,000
Additional NASF Per FTE :	11
Institution Mimimum NASF:	68,000
Per FTE Allocation:	219,857
Total Physical Education and Recreation NASF:	287,857

Summary NASF				
Part	Modeled	Exist E&G	Difference	Equiv FICM
I - Classrooms	145,604	280,577	134,973	1xx
II - Lab / Studio	171,327	190,916	19,589	210, 215
III - Open Lab	99,935	94,942	-4,993	220, 225
IV - Research	307,173	171,672	-135,501	250, 255
V - Office	523,626	769,011	245,385	3xx
VI - Library	206,706	264,201	57,495	4xx
VII - Phys Ed	287,857	130,209	-157,648	520, 523, 525
Totals:	1,742,228	1,901,528	159,300	





#### THEC - Space Allocation Guidelines

#### Data Input and Calculation Spreadsheet - UT and TBR Universities

127+

The UofM-SRCB Current Name of Institution: Date of Data: 6/20/19

Change shaded cells only:

| blue | Data inputs (institutions)
| salmon | Guidelines / planning inputs (THEC)
| NASF totals rounded up to next whole square foot.

Part I – Classroon	18	
		Weekly CR
Class Size	# of sections	Hours
1-8	10	26
9-14	15	41
15-20	13	36
21-26	15	38
27-32	16	42
33-47	13	32
48-74	8	22
75-126		

Stautil = 60%	(fixed)	Hrs per week:	30	Institutions en	ter 30 hrs for Day session or 17 for Evening
Classroom			Number of		
Stations	NASF / Sta	NASF per CR	CRs	Total NASF	
12	26	312	1	312	
20	25	500	2	1,000	
30	21	630	2	1,260	
40	18	720	2	1,440	
50	18	900	2	1,800	
60	18	1,080	2	2,160	
100	17	1,700	1	1,700	
150	16	2,400	0	0	
275	14	3,850	0	0	
		T	otal CR NASF:	9,672	

Part II - Schedule Lower Div (100+2		ios	
		Weekly Lab	Total
Discipline	# of sections	Hours	Enrollment
A			
В			
C	21	57	700
D			
E			

Sta util:	80%		Hrs per week:	20	
Mean Section	Stations per			Number of	
Size	Lab	NASF / Sta	NASF per Lab	Labs	Total NASF
0.0	0	150	0	0	0
0.0	0	100	0	0	0
33.0	42	75	3,150	3	9,450
0.0	0	60	0	0	0
0.0	0	40	0	0	0
			Total Lower	Div Lab NASF:	9.450

Upper Div + Grad	(300+ level)		
		Weekly Lab	Total
Discipline	# of sections	Hours	Enrollment
A	6	12	67
В			
C	20	52	295
D			
E			

Sta util:	75%		Hrs per week:	15	
Mean Section	Stations per			Number of	
Size	Lab	NASF / Sta	NASF per Lab	Labs	Total NASF
11.0	15	150	2,250	1	2,250
0.0	0	100	0	0	0
15.0	20	75	1,500	4	6,000
0.0	0	60	0	0	0
0.0	0	40	0	0	0
	•		Total Upper	Div Lab NASF:	8.250

Subtotal Lower + Upper Div Teaching Lab NASF: Support Allocation: Additional Space for Lab Support, NASF: 5.310 Grand Total Lower + Upper Div Teaching Lab + Support NASF:

Part III - Open Labs, Studios, Co	llaboration
Student enrollment (FTE)	1,497

Part IVa Research – by Res Expenditure		
	3-year Average Research	
	Expend	diture \$
Discipline	On-campus	Off-campus
A	\$21,124,438	
В		
C		

	3-year Average Research Expenditure \$	
Discipline	On-campus	Off-campus
A	\$21,124,438	
В		
C		
_		

NASF/FTE	Total NASF
5	7,485

Inflati	on since 2011:	0%		NASF	
		Inflation- Adjusted	On-campus Factor		
	NASF/\$1M	NASF/\$1M	100%	25%	Total NASF
	6,600	6,600	139,421	0	139,422
	5,400	5,400	0	0	0
	3,600	3,600	0	0	0
_		0			

2,700	2,700	0	0	0
	0			

Part IVb Research	- by Research	FTE					
Indicate FTE by Teaching Load or Contract: Contract							
Personnel		Discipline Group – FTE					
Category	A	В	C	D			
Faculty	30.1	21.0					
PhD, Post Doc	28.5	10.0					
Non-Faculty	83.0	3.0					
GRA/GTA	4.0						
Undergrad							
Vis / Adi							

#### Research Lab

D		Resea A	arch Lab NASF	/ FTE	Research Lab NASF	Lab Support NASF	Total Lab + Supt NASF
		600	450	300	27,510	10,532	38,042
		300	225	150	10,800	4,208	15,008
		300	225	150	25,575	10,196	35,772
		100	75	75	400	160	560
		50	50	50	0	0	0
		300	225	150	0	0	0
Support Allocations:		40%	35%	25%			

Total Research Lab NASF by Research Personnel FTE: 89,382

Part V - Personnel Requiring an Office				
Personnel Category	Total FTE			
President, Chancellor				
Provosts, Vice President				
Dean	1.0			
Assoc. Dean, Dept. Chair	7.0			
Professor, Assoc, Asst	47.0			
Other Faculty	9.0			
Professional Staff	8.0			
Clerical	7.0			
Staff, Technician	9.0			
GTA (Headcount)	25.0			
GRA (Headcount)	135.0			
Student, Clerical	109.0			
Other: Auditor, etc.				

FTE	NASF/FTE	Total NASF
	350	0
	240	0
1.0	180	180
7.0	150	1,050
47.0	150	7,050
9.0	100	900
8.0	130	1,040
7.0	120	840
9.0	100	900
25.0	60	1,500
135.0	40	5,400
109.0	40	4,360
	100	0
	Subtotal NASF:	23,220
Support Allocation:	30%	6,966
Total Office	e NASF by FTE:	30,186

Research Office

Research Offic			
Res Office			
NASF / FTE	Research	Office	Total Office +
D	Office NASF	Support NASF	Supt NASF
50	0	0	0
50	0	0	0
50	0	0	0
50	0	0	0
50	0	0	0
50	0	0	0
20%			

Tot Research Office NASF by Res Personnel FTE:

Part VI - Library	
Total vol and vol-equivalents	
Tot vols in compact shelving	
Cartographic collection	
Student enrollment (FTE)	1,497
Stu living on campus (FTE)	

		NASF per	
	Volumes	Volume	Total NASF
First 150,000 Volumes:	0	0.10	0
Next 150,000 Volumes:	0	0.09	0
Next 300,000 Volumes:	0	0.08	0
Next 600,000 Volumes:	0	0.07	0
Next 1,200,000 Volumes:	0	0.06	0
Next 2,400,000 Volumes:	0	0.05	0
Above 4,800,000 Volumes:	0	0.04	0
Compact Shelving	0	0.03	0
Cartographic Collection	0	0.02	0
	NAS	F for Volumes:	0

Number of Tables, Carrels, and Groups

	% of	Number of T,
	Enrollment	C, & Gs
On-campus:	25.0%	0
Off-campus:	5.0%	75
Total T, C, & Gs:		75

NASF for Tables, Carrels, Groups

	% of T, C, &	Number of T,	NASF per	
	Gs	C, & Gs	Station	Total NASF
% Standard:	45%	34	25	844
% Enhanced / Group:	25%	19	35	657
% Reserved / Assignable:	20%	15	35	525
% Group Study:	10%	8	35	263
NASF for Readers:			2,289	

Space for Technical Services

Sub-total Books an	2,289	
Add'l NASF, % of Sub-total for Technical Services:	12.5%	287
Total	Library NASF:	2,576

Part VII - Physical Education and Recreation	
Student Enrollment (FTE)	1,497
Per-institution Minimum NASF, <4000 FTE Students:	40,800
Per-institution Minimum NASF, 4000+ FTE Students:	68,000
Additional NASF Per FTE :	11
Institution Mimimum NASF:	40,800
Per FTE Allocation:	16,467
Total Physical Education and Recreation NASF:	57,267

Summary NASF				
Part	Modeled	Exist E&G	Difference	Equiv FICM
I - Classrooms	9,672	10,886	1,214	lxx
II - Lab / Studio	23,010	30,083	7,073	210, 215
III - Open Lab	7,485	8,846	1,361	220, 225
IV - Research	89,382	20,983	-68,399	250, 255
V - Office	30,186	23,528	-6,658	3xx
VI - Library	2,576		-2,576	4xx
VII - Phys Ed	57,267		-57,267	520, 523, 525
Totals:	219,578	94,326	-125,252	





#### THEC - Space Allocation Guidelines

#### Data Input and Calculation Spreadsheet - UT and TBR Universities

U of M-SRCB Projections Name of Institution: Date of Data: 6/20/19

Part I - Classrooms				
Class Size	# of sections	Weekly CR Hours		
1-8	13	34		
9-14	19	52		
15-20	17	50		
21-26	19	49		
27-32	20	53		
33-47	17	41		
48-74	11	29		
75-126				
127+				

Sta util = 60% (	(fixed)	Hrs per week:	30	Institutions en	ter 30 hrs for Day session or 17 for Evening.
Classroom			Number of		
Stations	NASF / Sta	NASF per CR	CRs	Total NASF	
12	26	312	2	624	
20	25	500	2	1,000	
30	21	630	2	1,260	
40	18	720	2	1,440	
50	18	900	2	1,800	
60	18	1,080	2	2,160	
100	17	1,700	1	1,700	
150	16	2,400	0	0	
275	14	3,850	0	0	
Total CR NASE:				9.984	

Part II - Scheduled Labs and Studios Lower Div (100+200 level)						
	Weekly Lab Total					
Discipline	# of sections	Hours	Enrollment			
A						
В						
C	28	76	938			
D						
F						

Sta util:	80%		Hrs per week:	20	
Mean Section	Stations per			Number of	
Size	Lab	NASF / Sta	NASF per Lab	Labs	Total NASF
0.0	0	150	0	0	0
0.0	0	100	0	0	0
34.0	43	75	3,225	4	12,900
0.0	0	60	0	0	0
0.0	0	40	0	0	0
			Total Lower	Div Lab NASF:	12.900

Upper Div + Grad (300+ level)						
		Weekly Lab	Total			
Discipline	# of sections	Hours	Enrollment			
A	8	13	71			
В						
C	27	54	311			
D						
E						

Sta util:	75%		Hrs per week:	15	
Mean Section	Stations per			Number of	
Size	Lab	NASF / Sta	NASF per Lab	Labs	Total NASF
9.0	12	150	1,800	1	1,800
0.0	0	100	0	0	0
12.0	16	75	1,200	4	4,800
0.0	0	60	0	0	0
0.0	0	40	0	0	0
			Total Upper	Div Lab NASF:	6,600

Subtotal Lower + Upper Div Teaching Lab NASF: Support Allocation: Additional Space for Lab Support, NASF: 5.850 Grand Total Lower + Upper Div Teaching Lab + Support NASF:

Part III - Open Labs, Studios, Col	laboration
Student enrollment (FTE)	2,006

	NASF/FTE	Total NASF
	5	10,030
,		

Inflation since 2011:

Part IVa Research – by Res Expenditure				
	3-year Average Research			
Discipline	Expenditure \$ On-campus Off-campus			
A	\$21,472,910			
В				
C				

	ragustea			
NASF/\$1M	NASF/\$1M	100%	25%	Total NASF
6,600	6,600	141,721	0	141,722
5,400	5,400	0	0	0
3,600	3,600	0	0	0
	Tota	l Research Lab	NASF by Res\$:	0
			'	
2 700	2 700	0	0	0

Total Research Office NASF by Res\$:

On-campus Factor

Adjusted

NASF Off-campu

Factor

D	

Part IVb Research	– by Research	FTE		
Indicate FTE by To	eaching Load o	r Contract:	Con	tract
Personnel		Discipline	Group – FTE	
Category	A	В	C	D
Faculty	41.0	27.0		
PhD, Post Doc	36.0	13.0		
Non-Faculty	106.0	4.0		
GRA/GTA	5.0			
Undergrad				
Vis / Adi				

#### Research Lab

		Research Lab NASF / FTE			Research Lab	Lab Support	Total Lab +
D		A	В	C	NASF	NASF	Supt NASF
		600	450	300	36,750	14,093	50,843
		300	225	150	13,725	5,344	19,069
		300	225	150	32,700	13,035	45,735
		100	75	75	500	200	700
		50	50	50	0	0	0
		300	225	150	0	0	0
Support Alloca	ations:	40%	35%	25%		_	

Total Research Lab NASF by Research Personnel FTE: 116,347

Part V - Personnel Requiring an Office			
Personnel Category	Total FTE		
President, Chancellor			
Provosts, Vice President			
Dean	1.0		
Assoc. Dean, Dept. Chair	9.0		
Professor, Assoc, Asst	69.0		
Other Faculty	11.0		
Professional Staff	10.0		
Clerical	9.0		
Staff, Technician	11.0		
GTA (Headcount)	32.0		
GRA (Headcount)	172.0		
Student, Clerical	139.0		
Other: Auditor, etc.			

FTE	NASF/FTE	Total NASF
	350	0
	240	0
1.0	180	180
9.0	150	1,350
69.0	150	10,350
11.0	100	1,100
10.0	130	1,300
9.0	120	1,080
11.0	100	1,100
32.0	60	1,920
172.0	40	6,880
139.0	40	5,560
	100	0
	Subtotal NASF:	30,820
Support Allocation:	30%	9,246
Total Office	NASF by FTE:	40,066

Research (	)ffice
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Res Office NASF/FTE D	Research Office NASF	Office Support NASF
50	0	0
50	0	0
50	0	0
50	0	0
50	0	0
50	0	0
20%		

Tot Research Office NASF by Res Personnel FTE:

Part VI - Library	
Total vol and vol-equivalents	
Tot vols in compact shelving	
Cartographic collection	
Student enrollment (FTE)	2,006
Stu living on campus (FTE)	

	Volumes	NASF per Volume	Total NASF
First 150,000 Volumes:	0	0.10	0
Next 150,000 Volumes:	0	0.09	0
Next 300,000 Volumes:	0	0.08	0
Next 600,000 Volumes:	0	0.07	0
Next 1,200,000 Volumes:	0	0.06	0
Next 2,400,000 Volumes:	0	0.05	0
Above 4,800,000 Volumes:	0	0.04	0
Compact Shelving	0	0.03	0
Cartographic Collection	0	0.02	0
	NAS	F for Volumes:	0

Number of Tables, Carrels, and Groups

	% of	Number of T,	
	Enrollment	C, & Gs	
On-campus:	25.0%	0	
Off-campus:	5.0%	101	
Total T, C, & Gs:		101	

NASF for Tables, Carrels, Groups

	% of T, C, &	Number of T,	NASF per	
	Gs	C, & Gs	Station	Total NASF
% Standard:	45%	45	25	1,137
% Enhanced / Group:	25%	25	35	884
% Reserved / Assignable:	20%	20	35	707
% Group Study:	10%	10	35	354
		NA	SF for Readers:	3,082

Space for Technical Services

Sub-total Books and	3,082	
Add'l NASF, % of Sub-total for Technical Services:	12.5%	386
Total	Library NASF:	3,468

Part VII - Physical Education and Recreation	-
Student Enrollment (FTE)	2,006
Per-institution Minimum NASF, <4000 FTE Students:	40,800
Per-institution Minimum NASF, 4000+ FTE Students:	68,000
Additional NASF Per FTE :	11
Institution Mimimum NASF:	40,800
Per FTE Allocation:	22,066
Total Physical Education and Recreation NASF:	62,866

Summary NASF				
Part	Modeled	Exist E&G	Difference	Equiv FICM
I - Classrooms	9,984	10,886	902	lxx
II - Lab / Studio	25,350	30,083	4,733	210, 215
III - Open Lab	10,030	8,846	-1,184	220, 225
IV - Research	116,347	20,983	-95,364	250, 255
V - Office	40,066	23,528	-16,538	3xx
VI - Library	3,468		-3,468	4xx
VII - Phys Ed	62,866		-62,866	520, 523, 525
Totals:	268,111	94,326	-173,785	
_				1





# PHYSICAL FACILITIES INVENTORY AND SURVEY

UoM Engineering Administration Building

037

#### **Information Summary**

Primary Use Secondary Use

Use Code 12 Gross Area 46,409 Year Built 1970

#### **Rating Summary**

Category	Section	Value	Campus Rating	Campus Score	Review Rating	Review Score
Substructure	Foundation	8	80	6.4	90	7.2
	<b>Basement Construction</b>	3	100	3.0	100	3.0
Shell	Superstructure	7	100	7.0	100	7.0
	Exterior Enclosure	7	80	5.6	70	4.9
	Roofing	7	70	4.9	80	5.6
Interiors	Interior Construction	6	90	5.4	90	5.4
	Stairs	3	80	2.4	90	2.7
	Interior Finishes	4	90	3.6	90	3.6
Systems	Conveying	3	60	1.8	50	1.5
	Plumbing	5	90	4.5	90	4.5
	HVAC	14	30	4.2	60	8.4
	Fire Protection	6	100	6.0	60	3.6
	Electrical	8	80	6.4	100	8.0
	Data & Communications	5	100	5.0	100	5.0
General	Equipment & Furnishings	1	50	0.5	100	1.0
	Special Construction	1	100	1.0	100	1.0
	Site Conditions	2	100	2.0	60	1.2
	Safety Standards	4	100	4.0	100	4.0
	Building Suitability	3	80	2.4	100	3.0
	<b>Building Adaptability</b>	3	100	3.0	90	2.7
		100		79.1		83.3

#### **Building Summary**

FEA - Houses Engineering Administrative offices. The Ground Water Institute and an auditorium.

#### **Survey Notes**

<u> </u>		
2019-06-07	Gerry Keen	Campus inspection and updates
2006-08-09	conversion	Review Inspection:: Architectural: Jim Young; Structural: Jim Young;
		Mechanical: Jeff Hunt; Electrical: Jeff Hunt;
2003-03-05	conversion	Campus Inspection::

**Foundation** 

# **Engineering Administration Building**

Value Campus Rating Campus Score Review Rating Review Score 8 80 6.4 90 7.2

#### A10 Items

Cracked Walls	S	****
Settlement	S	****
Deterioration	S	****
Drainage	S	****

#### Description

FEA - Spread footings under bearing walls, isolated concrete footings at columns. Foundations are concrete and concrete block.

#### **Condition / Recommendation**

FEA - Modified.

FEA - Major cracks and movement in the brick facade on much of the building. It's unclear whether this is foundation related. See exterior enclosure section.

GK - Building envelope repairs 2010

GK - Slab on grade settlement at ground floor and auditorium

Basement Construction	Value	Campus Rating	Campi	us Score	Review Rating	Review Score
A20	3	100	3	3.0	100	3.0
Items						
		Floor Slab	NA			
		Wall Condition	NA			
		Settlement	NA			

NA

Water Problems

#### Description

FEA - No comments.

#### **Condition / Recommendation**

No basement.

FEA - Concurs.

Superstructure	Value	Campus Rating	, (	Campus Score	<b>Review Rating</b>	<b>Review Score</b>
B10	7	100		7.0	100	7.0
Items						
	Floor Structure Condition			****		
	Roof Structure Condition			****		

#### Description

FEA - Concrete slab and bearing framed structure with exterior load bearing walls constructed of CMU Block.

#### **Condition / Recommendation**

FEA - No recommendations.

# **Engineering Administration Building**

Exterior Enclosure	Value	Campus Rating	(	Campus Score	Review Rating	Review Score
B20	7	80		5.6	70	4.9
Items						
		Wall Condition	S	****		
		Caulking	S	****		
	Cle	aning & Pointing	S	****		
		Painting	S	****		
	W	indow Condition	3	***		
	Exterio	r Door Condition	S	****		
	Fy	terior Hardware	ς	****		

#### Description

FEA - Brick exterior on CMU back up. Windows are single glazed aluminum frame fixed sash. Entry doors are aluminum storefront type.

#### **Condition / Recommendation**

Doors and hardware are worn out. Needs caulking and pointing.

- FEA Concurs.
- FEA There are major cracks and movement on the brick facade, and the cmu wall adjacent to the cracked areas.
- This movement is especially evident in the auditorium area. May be related to a lack of expansion joints. Recommend further evaluation. See photos.
- FEA Caulking is deteriorated requiring a complete re-caulk of the entire building. See photo.
- FEA Many areas of brick facade movement and cracking. Recommend further evaluation and installation of expansion joints. See photo.
- FEA Windows are single pane. Recommend planned replacement with double pane for energy savings. See photo.
- FEA The exterior doors in the walkway between the Admin. and Science building are binding and damaged due to movement of the sidewalk. Recommend replacement. See photo.
- GK Exterior building envelope repairs completed 2010. Brick repaired, building caulked, doors replaced. Single glazed windows not replaced.

# **Engineering Administration Building**

Roofing	Value	<b>Campus Rating</b>	(	Campus Score	Review Rating	<b>Review Score</b>
B30	7	70		4.9	80	5.6
Items						
		Roofing	2	***		
		Parapets	2	***		
		Flashing	2	****		
	_	Drainage	2	****		

#### Description

FEA - EPDM Ballasted.

#### **Condition / Recommendation**

FEA - EPDM roofing showing signs of age. Some stretching at the perimeter. Requiring replacement by 2009. See

FEA - Parapets are showing movement in some areas. May be related to the facade issues. Concrete surfaces are deteriorated. Recommend cleaning and sealing. Recommend installing expansion joints in parapet. See photo.

FEA - Evidence of water infiltration around the clear story windows in the Ground Water Institute that is likely related to the flashing in poor condition on the window sills. Recommend replacement of the flashing. See photo.

GK - Warranty expired 2019, deterioration including organic growth in roof ballast

#### **Roof Information**

Туре	Manufacturer	Location	Area	Year New	Warranty End
EPDM Ballast -			18,934	1987	
Firestone					

Interior Construction	Value	Campus Rating	(	Campus Score	Review Rating	<b>Review Score</b>
C10	6	90		5.4	90	5.4
Items						
		Ceilings	2	***		
Interior Walls - Partitions			2	***		
		Wall Suitability	2	***		
	Wall C	ode Compliance	2	****		

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### Description

FEA - Painted CMU walls and dry wall partitions. Exposed painted concrete structure. Acoustical tile ceilings. Cement plaster ceilings in toilets. Wood and metal doors, metal frames.

3

#### **Condition / Recommendation**

Doors are serviceable. Stairwell doors are worn out. Hardware is worn and parts are not available. Not ADA compliant.

Interior Doors

Interior Hardware

FEA - Modified.

FEA - Interior doors work satisfactorily.

FEA - Hardware is not ADA. Recommend replacement. See photo.

GK - Acoustical ceilings replaced 2010

# **Engineering Administration Building**

Stairs C20	<b>Value</b> 3	Campus Rating 80	(	Campus Score 2.4	Review Rating 90	Review Score 2.7
Items						
	St	air Construction	S	****		
		Stair Finishes	S	****		
		Handrails	S	****		
	C	ode Compliance	3	***		

#### Description

FEA - Concrete stairs with non-slip nosing and metal handrails. Stairwell are plastered CMU with steel doors and frames.

#### **Condition / Recommendation**

Needs normal R & R.

FEA - Concurs.

FEA - Guard rails not code compliant. Recommend retrofitting with guard rails; maximum of 4 inch spacing. See photo.

GK - Stairwell hardware and doors worn out, do not close

GK - Stair treads require replacement at fire stairs

Interior Finishes	Value	Campus Rating	, (	Campus Score	Review Rating	<b>Review Score</b>
C30	4	90		3.6	90	3.6
Items						
		Ceiling Finishes	S	****		
		Wall Finishes	S	****		
		Floor Finishes	4	**		
	Specia	al Areas (Toilets)	3	***		

#### Description

FEA - Painted CMU walls and dry wall partitions. Exposed painted concrete structure. Acoustical tile ceilings. Cement plaster ceilings in toilets. Wood and metal doors, metal frames.

#### **Condition / Recommendation**

Interlocking ceiling system needs replacing.

FEA - Concurs.

FEA - 12x12 interlocking ceiling is failing in areas. Recommend replacement in 5-8 years. See photo.

GK - Ceilings replaced with accessible 2x4 acoustical tile system in 2010.

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# **Engineering Administration Building**

Conveying D10	<b>Value</b> 3	Campus Rating 60	C	Campus Score	e Review Rating 50	Review Score 1.5
Items						
	Ele	vator Condition	3	***		
	Ele	vator Suitability	3	***		
	(	Other Conveying	S	****		
	F	ADA Compliance	4	**		

#### Description

FEA - Two hydraulic 2000 lb elevators in building. One is basically out of use (operational but not used).

#### **Condition / Recommendation**

Two elevator in building. Elevator needs to be brought up to code requirements.

FEA - modified.

FEA - one elevator (main) has new equipment and controls installed in 2003. Second elevator (library) original.

FEA - cabs small for ADA.

FEA - Second elevator (library) has leveling issue. Repair of elevator is to be used.

FEA - Recommends bringing to code if desire to put back in use.

Plumbing	Value	<b>Campus Rating</b>	(	Campus Score	<b>Review Rating</b>	<b>Review Score</b>
D20	5	90		4.5	90	4.5
Items						
	Pl	umbing Fixtures	2	****		
	Domestic Wa	ater Distribution	S	****		
	Back	Flow Preventers	S	****		
		Sanitary Waste	S	****		
	Rain	Water Drainage	S	****		
	Other Pl	umbing Systems	S	****		
	C	ode Compliance	S	****		

#### Description

FEA - ADA friendly bathrooms available in building (1st floor) (no strobes) copper lines carry water from Engineer Science building's water supply.

#### Condition / Recommendation

All plumbing fixtures need to be updated.

FEA - modified.

FEA - parts for fixtures/valve repair difficult to find.

FEA - recommend replacement as they fail.

GK - Toilet room faucets require replacement, existing non mixing valve type

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# **Engineering Administration Building**

HVAC	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
D30	14	30	4.2	60	8.4

#### **Items**

Fuel Energy Supply Systems	S	****
Heat Generation Systems	3	***
Heat Rejection Systems Refrigeration	U	*
Heat HVAC Distribution Systems	2	****
Heat Transfer Terminal & Package Units	4	**
HVAC Instrumentation and Controls	S	****
HVAC Systems T A B	S	****
Other Special HVAC Systems & Equip	S	****

#### Description

This building's heating distribution system comes from Engineering Science building and needs to be replaced.

FEA - modified.

FEA - New actuator on multizone AHU.

#### **Condition / Recommendation**

Piping to perimeter heat needs to be replaced.

FEA - modified.

FEA - controls updated via installation of new acuators on zone dampers on mulizone AHU's.

FEA - recommends replacement of fan coil units due to increasing costs of repair, drain leaks, at limited supply of parts (see photo).

Fire Protection	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
D40	6	100	6.0	60	3.6

#### **Items**

Sprinkler Systems	S	****
Standpipes	S	****
Fire Pump	S	****
Fire Extinguishers	S	****
Fire Alarm System	S	****
Other Fire Protection Systems	NA	

#### Description

Simplex

FEA - Fire panel (no. 4009) located in mechanical room multiple hose cabinets located on each floor.

#### **Condition / Recommendation**

Old FACP. No parts available for support. Working. Building is not sprinkled.

FEA - concurs.

FEA - fire control needs addressed with standpipes and hose cabinets.

FEA - recommends updating fire alarm panel to fully addressable system as is recommended for buildings of this size (see photo).

GK - Building sprinklered in 2010 including new FACP

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# **Engineering Administration Building**

037

Electrical	Value	<b>Campus Rating</b>	Campus Score	<b>Review Rating</b>	<b>Review Score</b>
D50	8	80	6.4	100	8.0

#### Items

System Capacity	S	****
Electrical Service and Distribution	4	**
Branch Wiring	S	****
Lighting	S	****
Special Electrical Systems	S	****
EMS / Controls	NA	
Exit / Emergency Lights	S	****
Other Electrical Systems	S	****
Code Compliance	S	****

#### Description

FEA - Panel located in mechanical room. Main gear in engineering science building.

#### **Condition / Recommendation**

FEA - no recommendations.

**GK** - Grounding issues

Data & Communications	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
D60	5	100	5.0	100	5.0

#### Items

Wiring / Fiber Optic System	S	****
Distribution Closets	S	****
Accessible Cableways	NA	
Special Requirements	NA	

#### Description

FEA - phone system installed in building.

FEA - Computer network panel located in closet on top floor.

#### **Condition / Recommendation**

FEA - no recommendations.

# **Engineering Administration Building**

**Campus Rating Equipment & Furnishings** Value **Campus Score Review Rating Review Score** 50 0.5 100 1.0 E10 **Items** 

Equipment	3	***
Furnishings	3	***

#### Description

FEA - Auditorium seats, auditorium audio system.

#### Condition / Recommendation

Auditorium seating in fair condition.

- FEA Seating is good condition. Unable to test the audio system.
- GK Seating replaced 2015, audio system satisfactory
- GK Metrology lab functionally isolated and insufficient temperature/humidity control
- GK Primary circulation through Study area limits usefulness
- GK IFTI Training room undersized
- GK Student services crowded and needs space to expand

<b>Special Construction</b>	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
F10	1	100	1.0	100	1.0
Items					

Special Construction Systems	NA	
Special Facilities	NA	
Special Controls and Instrumentation	NA	

#### Description

None

FEA - Concurs.

#### Condition / Recommendation

FEA - No recommendations.

Site Conditions	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
G10	2	100	2.0	60	1.2
Items					

Access to Building	S	****
Sidewalk & Steps	S	****
Exterior Lighting	S	****
Rain Water Drainage	S	****
Utilities & Services	S	****

#### Description

FEA - No comments.

#### Condition / Recommendation

North steps have settled approximately 2". Northeast corner is underground - some seepage.

FEA - Concurs.

FEA - Major settlement of entrance steps at north steps. Recommend demolition and removal of existing concrete steps and installation of new steps. See photo.

GK - North steps replaced 2010

# **Engineering Administration Building**

037

Safety Standards	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
Z10	4	100	4.0	100	4.0

#### Description

North steps.

FEA - Concurs.

FEA - The settlement of the north steps cause uneven risers posing a trip hazard. See photo.

#### **Condition / Recommendation**

GK - North steps replaced 2010

<b>Building Suitability</b>	Value	Campus Rating	Campus Score	Review Rating	Review Score
Z20	3	80	2.4	100	3.0
Description					

FEA - Suitable for the current use.

#### **Condition / Recommendation**

GK- IFTI and Laboratory space limit student services functions primary to buildings mission

<b>Building Adaptability</b>	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
Z30	3	100	3.0	90	2.7
Description					
EEA Building is easily adapt	ablo				

FEA - Building is easily adaptable.

#### **Condition / Recommendation**

(none)

# **Engineering Administration Building**

037

# **Projects**

Year	SBC Number	Description	Designer	Cost
------	------------	-------------	----------	------

# **Attachments**

Description	Pages	Author	Date
		7.0.0	

#### **Pictures**

Sequence	Location	Description
1	Engineering Admin.	FEA - General Overview
2	Typical Corridor	FEA - Replace of fan coil units due to increasing cost of
		repair, drain leaks/corrosion, & limited supply of
		replacement parts.
3	Mechanical Room	FEA - Updating fire panel to fully addressable system
		recommended for building this size.
4	Engineering Admin	FEA - Main Entrance
5	Roof, typical for many areas of exterior wall	FEA - Parapet cap movement, deteriorated caulking
6	Roof, typical	FEA - Stretching of the EPDM at the perimeter
7	Roof	FEA - Deteriorated flashing on clear story windows over
		the Ground Water Institute
8	2nd floor, south side	FEA - Single pane windows
9	2nd floor	FEA - Evidence of water damage below clear story
		windows in Ground Water Institute
10	Southwest stairwell, typical	FEA - Guard rail not code compiant
11	Southwest Auditorium, typical	FEA - Auditorium southwest wall showing cmu cracks
		through the plaster
12	1st floor, typical	FEA - Hardware not ADA compliant
13	Exterior southwest auditorium, typical	FEA - Cracks in the brick façade
14	North wall, typical	FEA - Brick façade showing cracks and lack of expansion
		joints
15	North entrance	FEA - Settlment of steps posing a trip hazard
16	North entrance	FEA - Steps showing settlement
17	North entrance	FEA - Damaged doors due to sidewalk movement
18	North entrance, typical	FEA - Movement in concrete panels

032

#### **Information Summary**

Primary Use Secondary Use

Use Code 12 Gross Area 66,423 Year Built 1970

## **Rating Summary**

Category	Section	Value	Campus Rating	Campus Score	Review Rating	Review Score
Substructure	Foundation	8	80	6.4	100	8.0
	<b>Basement Construction</b>	3	100	3.0	100	3.0
Shell	Superstructure	7	90	6.3	100	7.0
	Exterior Enclosure	7	80	5.6	80	5.6
	Roofing	7	70	4.9	90	6.3
Interiors	Interior Construction	6	90	5.4	90	5.4
	Stairs	3	80	2.4	80	2.4
	Interior Finishes	4	90	3.6	90	3.6
Systems	Conveying	3	90	2.7	100	3.0
	Plumbing	5	90	4.5	90	4.5
	HVAC	14	80	11.2	40	5.6
	Fire Protection	6	100	6.0	60	3.6
	Electrical	8	80	6.4	80	6.4
	Data & Communications	5	100	5.0	100	5.0
General	Equipment & Furnishings	1	50	0.5	90	0.9
	Special Construction	1	90	0.9	100	1.0
	Site Conditions	2	90	1.8	90	1.8
	Safety Standards	4	100	4.0	100	4.0
	Building Suitability	3	50	1.5	100	3.0
	Building Adaptability	3	100	3.0	90	2.7
		100		85.1		82.8

## **Building Summary**

FEA - Modified.

FEA - Houses the Electrical and Computer Science Engineering Departments.

### **Survey Notes**

2019-06-07	Gerry Keen	Campus inspection and updates
2006-08-10	conversion	Review Inspection:: Architectural: Jim Young; Structural: Jim Young; Mechanical: Jeff Hunt; Electrical: Jeff Hunt;
2003-03-05	conversion	Campus Inspection::

# **Engineering Science Building**

view Score

032

Foundation	Value	Campus Rating	(	Campus Score	Review Rating	Review Score
A10	8	80		6.4	100	8.0
Items						
		Cracked Walls	S	****		
		Settlement	S	****		
		Deterioration	S	****		
		Drainage	S	****		

#### Description

FEA - Spread footings under bearing walls, isolated concrete footings at columns. Foundations are concrete and concrete block. First floor is slab on grade.

#### **Condition / Recommendation**

FEA - The foundation appeared to be in satisfactory condition.

<b>Basement Construction</b>	Value	Campus Rating	, (	Campus Scor	e Review Rating	<b>Review Score</b>
A20	3	100		3.0	100	3.0
Items						
		Floor Slab	NA			
		Wall Condition	NA			
		Settlement	NA			
		Water Problems	NA			

#### Description

FEA - No comments.

#### **Condition / Recommendation**

No basement.

FEA - No recommendations.

Value			Campus Score	<b>Review Rating</b>	<b>Review Score</b>
7	90		6.3	100	7.0
Floor Structure Condition			****		
Roof Structure Condition			****		
	7 Floor Stru	7 <b>90</b> Floor Structure Condition	7 <b>90</b> Floor Structure Condition S	7 90 6.3  Floor Structure Condition S *****	7 90 6.3 100  Floor Structure Condition S *****

#### Description

FEA - Reinforced concrete slab, beams and columns, cast in place concrete pan joist system with reinforced concrete roof deck.

#### **Condition / Recommendation**

FEA - The floor and roof structure appeared in good condition.

# **Engineering Science Building**

<b>Exterior Enclosure</b>	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
B20	7	80	5.6	80	5.6

#### B20 Items

Wall Condition	S	****
Caulking	S	****
Cleaning & Pointing	S	****
Painting	S	****
Window Condition	3	***
Exterior Door Condition	S	****
Exterior Hardware	S	****

#### Description

FEA - Brick exterior on CMU back up with exposed concrete frame. Windows are single glazed aluminum frame fixed sash with some operable. Entry doors are aluminum storefront type.

#### **Condition / Recommendation**

Doors are worn out and hardware is worn. Some parts still available. Hardware is not ADA compliant. Walls are cracked and need caulking and pointing.

- FEA Modified.
- FEA The cracks in the brick veneer do not appear to be caused by foundation settlement. Recommend further evaluation.
- FEA Brick and precast joints are generally in good condition except for isolated areas. Recommend tuck pointing where needed. See photo.
- FEA Caulking is missing and loose in many areas. Recommend re-caulking of entire building. See photo.
- FEA Single pane windows appeared in good condition, but recommend planned replacement with insulated glass for energy savings. See photo.
- FEA Unable to check all windows for operability.
- FEA Exterior doors and hardware appeared satisfactory.
- GK Exterior building envelope project completed 2010 including brick, caulking, concrete, and doors
- GK Single pane windows function poorly and need replacement with insulating units

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# **Engineering Science Building**

Roofing	Value	<b>Campus Rating</b>	Campus Score	e Review Rating	<b>Review Score</b>
B30	7	70	4.9	90	6.3
Items					
		_			

Roofing	2	****
Parapets	3	***
Flashing	S	****
Drainage	S	****

#### Description

FEA - EPDM, 60 mil reinforced.

#### **Condition / Recommendation**

FEA - Modified.

FEA - Roof EPDM is in good condition. Some shrinkage at the edges. Requiring cutting and patching to relax the EPDM. See photo.

FEA - Parapets stone caps should be cleaned and sealed. See photo.

GK - Roof warranty expires 2019

#### **Roof Information**

Туре	Manufacturer	Location	Area	Year New	Warranty End	
EPDM 060 mil Ballast	Carlisle	Main Level	23,000	2001		
EPDM 060 mil	Carlisle	Lower walkway	2,000	2001		
Ballasted						

Interior Construction	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
C10	6	90	5.4	90	5.4

#### Items

Ceilings	S	****
Interior Walls - Partitions	S	****
Wall Suitability	S	****
Wall Code Compliance	S	****
Interior Doors	2	****
Interior Hardware	3	***

#### Description

FEA - Painted CMU walls and dry wall partitions. Exposed painted concrete structure. Acoustical tile ceilings. Cement plaster ceilings in toilets. Wood and metal doors, metal frames.

#### **Condition / Recommendation**

Fire door hardware is impossible to keep working and needs replacement as soon as possible. Doors could possibly contain asbestos.

FEA - Concurs.

FEA - Reportedly the hardware on the fire doors are outdated and unable to get parts. See photo.

FEA - Reportedly the fire doors may contain asbestos. Recommend testing and remediation. See photo.

FEA - Most doors do not have ADA compliant hardware. See photo.

FEA - Ceilings and walls appeared satisfactory.

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# **Engineering Science Building**

**Stairs** Value **Campus Rating Campus Score Review Rating Review Score** C20 3 80 2.4 80 2.4

#### Items

Stair Construction	S	****
Stair Finishes	S	****
Handrails	S	****
Code Compliance	3	***

#### Description

FEA - Tile floors. Concrete stairs with non-slip nosing and metal handrails. Stairwell are plastered CMU with steel doors and frames

#### **Condition / Recommendation**

FEA - Modified.

FEA - Guard rails are not code compliant. Recommend retro-fitting with railings space; a maximum of 4 inches. See photo.

GK - Fire doors are worn and not functioning, recommend door and hardware replacement

GK - Stair treads are worn/missing, recommend full replacement

GK - Handrails and guardrails do not meet current codes

Interior Finishes	Value	Campus Rating	, (	Campus Scor	e Review Rating	<b>Review Score</b>
C30	4	90		3.6	90	3.6
Items						
		Ceiling Finishes	S	****		
		Wall Finishes	S	****		
		Floor Finishes	S	****		
	Specia	al Areas (Toilets)	S	****		

#### Description

FEA - Painted walls, tile floors.

#### **Condition / Recommendation**

Good condition.

FEA - Concurs.

Conveying D10	<b>Value</b> 3	Campus Rating 90	, (	Campus Scor	e Review Rating 100	Review Score 3.0
Items						
	Ele	vator Condition	S	****		
	Ele	vator Suitability	2	****		
	C	ther Conveying	NA			
	A	DA Compliance	2	****		

#### Description

FEA - Phase 2 five controls.

FEA - Hydraulic, 3-stop.

#### **Condition / Recommendation**

Elevator was renovated in 2000, included replacement of value.

FEa - modified.

FEA - No recommendations.

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**Plumbing** 

# **Engineering Science Building**

Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
5	90	4.5	90	4.5

#### D20 Items

Plumbing Fixtures	3	***
Domestic Water Distribution	S	****
Back Flow Preventers	S	****
Sanitary Waste	S	****
Rain Water Drainage	S	****
Other Plumbing Systems	S	****
Code Compliance	S	****

#### Description

FEA - 4" domestic water for this building and engineering admin.

FEA - Electric HW heaters/domestic.

#### **Condition / Recommendation**

All plumbing fixtures need to be updated upon failure.

FEA - modified.

FEA modified - recommends inspection and tagging of backflow preventers annually as required by code.

FEA - repiping required for installation of ADA retrofit (lovering of urinal).

FEA - parts for fixture/valve repair difficult to find (see photo).

FEA - Replace individual fixtures as they fail.

GK - Toilet room faucets need replacement, non mixing valve type

# **Engineering Science Building**

HVAC	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
D30	14	80	11.2	40	5.6

#### **Items**

	1
S	****
4	**
U	*
S	****
2	****
	4 U S S S S

#### Description

 $Provides\ heat\ and\ cooling\ distribution\ for\ Engineering\ Science\ and\ Engineering\ Administration.$ 

FEA - concurs.

#### **Condition / Recommendation**

FEA modified - recommends replacement of steam to hot water heat exchanger and flash tank (see photo) due to corrosion.

FEA - recommends replacement of AHU's (18 total units) due to reported leak (prefer to move ceiling mounted to floor to ease maintenance) in conjunction with replacement of chilled water piping 1.5" or smaller (see photo) due to corrosion.

FEA - recommends replacement of fan coil units due to increasing cost of repair, drain leaks, and limited supply of suitable fan motors (see photo).

FEA - reportedly pneumatic control system has oil contamination which has affected operation of some local controls. Recommend repair and replacement with DDC system.

FEA - likely inadequate outside air make up to individual rooms. Recommend increasing percent OA.

FEA - the two DX units serving the computer labs experience periodic shut downs. Recommend consulting with manufacturer to correct the problem (since relatively new).

GK - HVAC replacement 2010

GK - Compressed air system requires replacement

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Fire Protection	Value	Campus Rating	(	Campus Score	Review Rating	Review Score
D40	6	100		6.0	60	3.6
Items						
	Sp	rinkler Systems	S	****		
		Standpipes	S	****		
		Fire Pump	S	****		
	Fir	e Extinguishers	S	****		
	Fir	e Alarm System	S	****		
	Other Fire Pro	tection Systems	S	****		

#### Description

Simplex, fire panel, hose cabinets on each floor.

FEA - modified.

GK - Sprinklered

#### **Condition / Recommendation**

Old fire alarm system. Working but no parts are available for support. No sprinkler in building.

FEA modified - reportedly budgets approved to install sprinkler system throughout building.

FEA - reportedly budgets approved to replace fire alarm system.

GK - Building sprinklered 2010 with new FACP

Electrical	Value Cam	pus Rating	Ca	ampus Score	<b>Review Rating</b>	<b>Review Score</b>
D50	8	80		6.4	80	6.4
Items						
	System	Capacity	4	**		
	Electrical Service and Dis	stribution	2	***		
	Bran	ch Wiring	S	****		
		Lighting	S	****		
	Special Electrica	l Systems	S	****		
	EMS /	Controls	3	***		
	Exit / Emergei	ncy Lights	S	****		
	Other Electrica	l Systems	S	****		
	Code Co	mpliance	3	***		

#### Description

FEA - back up generator.

FEA - Main switchboard in isolated electrical room.

#### **Condition / Recommendation**

FEA - observed T12 lamps remaining in miscellaneous areas such as shops, elevators, etc. Recommend replacing with T8.

FEA - Johnson control system controls hot water, pump operation, hot water temperature, and scheduling of AHU; invinsys DDC system controls CHW pump (see photo).

FEA - main switch board doesn't have min, 3 ft. clearance in front of cabinet as required by code (see photo). Will require attention with any major renovation.

# **Engineering Science Building**

**Data & Communications** Value **Campus Rating Campus Score Review Rating Review Score** D60 5 100 5.0 100 5.0

#### **Items**

Wiring / Fiber Optic System	S	****
Distribution Closets	NA	
Accessible Cableways	NA	
Special Requirements	NA	

#### Description

FEA - Phone system in building.

#### **Condition / Recommendation**

FEA - no recommendations.

**Equipment & Furnishings** Value **Campus Rating Campus Score Review Rating Review Score** E10 1 50 0.5 90 0.9 **Items** \*\*\* Equipment \*\*\*\* **Furnishings** 2

#### Description

FEA - Lab casework and equipment. Machine shop.

#### **Condition / Recommendation**

Machine shop.

FEA - Concurs.

FEA - Reportedly the machine shop is being moved to Engineering Tech. Building.

FEA - The lab casework is generally in good condition. Recommend replacement no earlier than 2016.

- GK Structures/Earthquake Lab deficient and needs major upgrade
- GK Environmental Lab upgrade required
- GK Bioelectrical Lab spatially deficient and requires equipment upgrade
- GK Senior Lab spatially deficient and requires upgrade

<b>Special Construction</b>	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
F10	1	90	0.9	100	1.0

#### **Items**

Special Construction Systems	S	****
Special Facilities	S	****
Special Controls and Instrumentation	NA	

#### Description

FEA - Several high bay labs.

#### **Condition / Recommendation**

FEA - Modified.

FEA - Unable to check the operation of the special controls.

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**Site Conditions** 

# **Engineering Science Building**

**Campus Rating Campus Score Review Rating Review Score** 90 1.8 90 1.8

#### G10 Items

Access to Building	S	****
Sidewalk & Steps	2	****
Exterior Lighting	S	****
Rain Water Drainage	2	****
Utilities & Services	S	****

Value

2

#### Description

FEA - Concrete steps and sidewalks.

#### **Condition / Recommendation**

Good condition.

FEA - Concurs.

FEA - Some isolated settlement of sidewalks was observed. Ceating water drainage problems. Recommend removal and installation of new concrete walks in these areas. See photo.

Safety Standards	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
Z10	4	100	4.0	100	4.0
Description					
FEA - Satisfactory.					

#### **Condition / Recommendation**

(none)

<b>Building Suitability</b>	Value	Campus Rating	Campus Score	Review Rating	Review Score
Z20	3	50	1.5	100	3.0
Description					

#### Description

FEA - Suitable.

#### **Condition / Recommendation**

- GK Structures/Earthquake lab requires upgrade
- GK Environmental lab requires remodeling
- GK Bioelectrical lab requires more space and equipment upgrade
- GK Senior design lab requires more space and equipment upgrade

<b>Building Adaptability</b>	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
Z30	3	100	3.0	90	2.7
Description					

FEA - Easily adaptable.

#### **Condition / Recommendation**

(none)

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# **Projects**

	1		l	
Year	SBC Number	Description	Designer	Cost

## **Attachments**

Description	Pages	Author	Date
	6		

#### **Pictures**

Sequence	Location	Description
0	Engineering Science	FEA - Main Building
1	Typical Restroom	FEA - Re-piping required for installation of ADA-
		compliant urinal (all on common line)/ Faucet upgrade
		required.
2	First Floor Mechanical Room	FEA - Steam to hot-water heat exchanger, flash tank, and
		condensate receiver/pump set original to building and at
		end of life; recommended for replacement.
3	Third Floor Mechanical Room	FEA - AHU-15 conditioned outside air to supply to
		classrooms (inadequate quantities of OA). Replace chill
		water service at unit.
4	Typical Corridor/Entry	FEA - Recommend replacement of fan coil units (Leaking,
		Repair/Replacement parts difficult to find, increasing
		repair costs).
5	First Floor Main Electrical Room	FEA - Main switchboard [Square D - 4000 amp] minimum
		three feet clearance required in front of panel to comply
		with code.
6	First Floor Mechanical Room	FEA - Johnson Controls model DSC-8500 Digital system
		controller provides minimal control of select equipment.
		Recommend expansion of currently installed system.
7	Roof, typical	FEA - Deteriorated parapets
8	Roof, typical	FEA - Stretching of the EPDM at the perimeter
9	1st floor, typical	FEA - Hardware not ADA compliant
10	North side, typical	FEA - Single pane windows
11	2nd floor, typical	FEA - Fire doors may contain asbestos
12	South side, typical	FEA - Loose , missing caulk in the expansion joints
13	Southeast corner	FEA - Loose motar joint, incorrect material in the joint,
		requires soft joint
14	Northwest stairwell, typical	FEA - Guard rail not code compiant
15	North side	FEA - Sidewalk settlement

# **Engineering Technology Building**

039

# UoM

# **Information Summary**

Primary Use Secondary Use

Use Code 12 Gross Area 102,291 Year Built 1971

# **Rating Summary**

Category	Section	Value	Campus Rating	Campus Score	Review Rating	Review Score
Substructure	Foundation	8	90	7.2	100	8.0
	<b>Basement Construction</b>	3	100	3.0	100	3.0
Shell	Superstructure	7	90	6.3	100	7.0
	Exterior Enclosure	7	90	6.3	80	5.6
	Roofing	7	100	7.0	100	7.0
Interiors	Interior Construction	6	70	4.2	100	6.0
	Stairs	3	80	2.4	80	2.4
	Interior Finishes	4	70	2.8	90	3.6
Systems	Conveying	3	40	1.2	70	2.1
	Plumbing	5	90	4.5	100	5.0
	HVAC	14	80	11.2	50	7.0
	Fire Protection	6	100	6.0	80	4.8
	Electrical	8	80	6.4	90	7.2
	Data & Communications	5	100	5.0	100	5.0
General	Equipment & Furnishings	1	50	0.5	100	1.0
	Special Construction	1	100	1.0	100	1.0
	Site Conditions	2	100	2.0	100	2.0
	Safety Standards	4	100	4.0	100	4.0
	Building Suitability	3	100	3.0	100	3.0
	<b>Building Adaptability</b>	3	100	3.0	90	2.7
		100		87.0		87.4

# **Building Summary**

FEA - Building houses engineering labs, offices, classrooms, machine shop, and carpenter shop.

# **Survey Notes**

2019-06-07	Gerry Keen	Campus inspection and updates
2006-08-09	conversion	Review Inspection:: Architectural: Jim Young; Structural: Jim Young;
		Mechanical: Jeff Hunt; Electrical: Jeff Hunt;
2003-03-05	conversion	Campus Inspection::

**Foundation** 

# **Engineering Technology Building**

90

**Campus Rating Campus Score Review Rating Review Score** 7.2 100 8.0

# A10 **Items**

Cracked Walls	S	****
Settlement	S	****
Deterioration	S	****
Drainage	S	****

Value

#### Description

FEA - Continous reinforced concrete footing, columns and load bearing isolated footings.

# **Condition / Recommendation**

FEA - No recommendations.

<b>Basement Construction</b>	Value	<b>Campus Rating</b>	(	Campus Score	<b>Review Rating</b>	Review Score
A20	3	100		3.0	100	3.0
Items						
		Floor Slab	S	****		
		Wall Condition	S	****		
		Settlement	S	****		
		Water Problems	c	****		

# Description

FEA - Reinforced concrete slab floor, continuous footing with reinforced concrete foundation walls.

# Condition / Recommendation

Water infiltrating storage area in basement.

FEA - Concurs.

FEA - Reportedly the water issues were caused by a broken interior downspout. Downspout was repaired in 2005. Observed no water or moisture in the basement. Observed soil in conduit in basement that may indicate a washout issue under the floor. Recommend further investigation. See photo.

GK - No further basement water issues reported or observed

Superstructure	Value	Campus Rating	, (	Campus Score	<b>Review Rating</b>	<b>Review Score</b>
B10	7	90		6.3	100	7.0
Items						
	Floor Stru	Floor Structure Condition		****		
	Roof Stru	acture Condition	S	****		

#### Description

FEA - Reinforced concrete slab, beams and columns, cast in place concrete pan joist system with reinforced concrete roof deck.

# **Condition / Recommendation**

FEA - No recommendations.

**Exterior Enclosure** 

Value Campus Rating Campus Score

**Review Score** 

**Review Rating** 

Exterior Eliciosure	Value	Campas Mating	•	ampus score	meticu mating	MCVICW SCOIC
B20	7	90		6.3	80	5.6
Items						
		Wall Condition	S	****		
		Caulking	S	****		
	Clea	aning & Pointing	S	****		
		Painting	S	****		
	W	indow Condition	3	***		
	Exterio	Door Condition	S	****		
	Ex	terior Hardware	S	****		

#### Description

FEA - Brick exterior on CMU back up with exposed concrete frame. Windows are single glazed aluminum frame fixed sash. Entry doors are aluminum storefront type

# Condition / Recommendation

North set of doors are new doors. Souhwest and center west doors are narrow style and are showing signs of age but parts can still be found. Roll-up door on east side - operators are obsolete and difficult to have repaired. Needs some caulking and pointing. Windows are of poor design and quality. Approximately 2'-6" x 7'-6" with light gauge hinges and mounting system.

- FEA Concurs.
- FEA Windows are single pane. Recommend planned replacement for energy savings. See photo.
- FEA Many areas have deteriorated and missing caulking. Recommend complete recaulking of the entire building. See photo.
- FEA Exterior doors appeared to be in satisfactory condition.
- FEA Several of the precast panels at the top of the exterior wall show movement. Recommend further evaluation to determine structural soundness. See photo.
- FEA Some spalling of precast panels. Recommend repair. See photo.
- FEA Some isolated areas of missing, loose mortar joints. Recommend tuck pointing. See photo.
- GK Exterior envelope repairs project in 2010, brick, concrete, and caulking repairs. Narrow stile doors replaced.
- GK Single glazed windows need replacement, operable windows malfunction

Roofing	Value	<b>Campus Rating</b>	(	Campus Score	Review Rating	<b>Review Score</b>
B30	7	100		7.0	100	7.0
Items						
		Roofing	S	****		
		Parapets	S	****		
		Flashing	S	****		
		Drainage	S	****		

#### Description

FEA - 60 mil reinforced EPDM.

#### **Condition / Recommendation**

FEA - Roof in good condition.

# **Roof Information**

Туре	Manufacturer	Location	Area	Year New	Warranty End
EPDM 60 mil	Firestone		25,824	2005	

Interior Construction	Value	Campus Rating	(	Campus Score	Review Rating	Review Score
C10	6	70		4.2	100	6.0
Items						
		Ceilings	S	****		
	Interior \	Walls - Partitions	S	****		
		Wall Suitability	S	****		
	Wall C	Code Compliance	S	****		
		Interior Doors	S	****		
	In	terior Hardware	S	****		

#### Description

FEA - No comments.

# **Condition / Recommendation**

FEA - Modified.

FEA - Observed no problems with hardware.

Stairs	Value C	ampus Rating	C	ampus Score	<b>Review Rating</b>	<b>Review Score</b>
C20	3	80		2.4	80	2.4
Items						
	Stair (	Construction	S	****		
	S	tair Finishes	2	***		
		Handrails	S	****		
	Code	Compliance	3	***		

# Description

FEA - Three egress stairs leading directly to the building exterior. Concrete stairs with non-slip nosing and metal handrails. Stairwell are plastered CMU with steel doors and frames.

# Condition / Recommendation

- FEA Some areas of worn deteriorated floor tile. Recommend repair/replacement. See photo.
- FEA North stairwell has damaged tread posing a tripping issue. See photo.
- GK doors and hardware require replacement, unable to close fire stairs
- GK Stair treads are worn and need replacement
- GK Handrails and guardrails are not in code compliance

Interior Finishes	Value	<b>Campus Rating</b>	. (	Campus Score	<b>Review Rating</b>	<b>Review Score</b>
C30	4	70		2.8	90	3.6
Items						
		Ceiling Finishes	S	****		
		Wall Finishes	S	****		
		Floor Finishes	2	****		
	Specia	al Areas (Toilets)	S	****		

#### Description

FEA - Painted CMU walls and dry wall partitions. Exposed painted concrete structure. Acoustical tile ceilings. Cement plaster ceilings in toilets. Wood and metal doors, metal frames.

# **Condition / Recommendation**

FEA - Modified.

FEA - Floor tiles show some wear, but still functional with isolated areas of repair. See photo.

Conveying

# **Engineering Technology Building**

Value Campus Rating Campus Score Review Rating Review Score
3 40 1.2 70 2.1

# D10 Items

Elevator Condition	3	***
Elevator Suitability	2	****
Other Conveying	S	****
ADA Compliance	2	****

# Description

FEA modified - 3500 Morris & Wallace hydraulic elevator - manlift for access to shop areas.

# **Condition / Recommendation**

1 elevator in building. Elevator not ADA.

FEA - concurs.

FEA - Floor leveling problem and malfunction door. Recommend repair.

FEA - Recommends installation of phase II fire service controls to comply with current codes.

FEA - Elevator suitable size for ADA compliance; recommend bring into compliance.

Plumbing	Value	<b>Campus Rating</b>	Campus Score	Review Rating	Review Score
D20	5	90	4.5	100	5.0

### **Items**

Plumbing Fixtures	3	***
Domestic Water Distribution	S	****
Back Flow Preventers	S	****
Sanitary Waste	S	****
Rain Water Drainage	S	****
Other Plumbing Systems	S	****
Code Compliance	S	****

# Description

FEA modified - copper domestic.

FEA - Electric HW heater for domestic HW.

# **Condition / Recommendation**

FEA modified - 1998 electric water heater.

FEA - observed recent repair of roof rain leader under concrete floor at first level.

FEA - No recommendations.

GK - Toilet room faucets need replacement, non mixing valve type

# **Engineering Technology Building**

11.2

**Campus Rating** 

80

Campus Score	<b>Review Rating</b>	<b>Review Score</b>
11 2	50	7.0

# D30 Items

**HVAC** 

Fuel Energy Supply Systems	S	****
Heat Generation Systems	S	****
Heat Rejection Systems Refrigeration	S	****
Heat HVAC Distribution Systems	S	****
Heat Transfer Terminal & Package Units	S	****
HVAC Instrumentation and Controls	S	****
HVAC Systems T A B	S	****
Other Special HVAC Systems & Equip	U	*

Value

14

#### Description

30 years old plus. Cannot meet today's IAQ standards or loads. Controls are 30 years old plus.

FEA - concurs.

FEA - A separate A/C system is installed on the roof for the new lab area (2002).

# Condition / Recommendation

No steam generation from main plant. Special equipment includes a new bio-med lab for Room 323 through Room 328. Rest of equipment and controls need to be replaced.

FEA - concurs.

FEA - Observed badly corroded chill water and hydronic hot water pipes where insulation is missing. Recommend replacement by 2008.

FEA - 100% OA single zone unit on third floor mechanical room duct work and AHU enclosure badly rusted (see photo). Recommend replacement.

FEA - Fan coil units (original McQuays) generally had temperture control problems. An isolated leak found at one unit in computer lab. FEA recommends budgeting for replacement over next few years (2010 - see photo).

FEA - Replace existing chill water pump and hot water pump due to age and increased maintenance issues (see photo).

FEA - Pneumatic air controls reportedly contaminated with oil, recommend replacement with DDC.

FEA - Johnson controls DDC system is installed for new equipment installed in penthouse. FEA recommends expansion of this system to pumps in basement and AHU on third floor for energy savings.

GK - HVAC replacement 2008

GK - Compressed air system requires replacement

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**Fire Protection** 

# **Engineering Technology Building**

Campus Rating Campus Score Review Rating Review Score
100 6.0 80 4.8

# D40 Items

Sprinkler Systems	S	****
Standpipes	S	****
Fire Pump	S	****
Fire Extinguishers	S	****
Fire Alarm System	S	****
Other Fire Protection Systems	S	****

Value

#### Description

Simplex FACP.

FEA - No comments.

# **Condition / Recommendation**

Simplex panel is working but is old four-wire non-zoned panel. Will need to be replaced within next five years, or if devices need to be added.

FEA - original 1970s fire alarm panel functions but does not provide addressable zone control as recommended for a building of this size. Recommend replacement.

GK - Building sprinklered in 2010, FACP replaced

Electrical	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
D50	8	80	6.4	90	7.2

#### **Items**

System Capacity	2	****
Electrical Service and Distribution	2	****
Branch Wiring	S	****
Lighting	S	****
Special Electrical Systems	S	****
EMS / Controls	2	****
Exit / Emergency Lights	S	****
Other Electrical Systems	S	****
Code Compliance	S	****

# Description

FEA - Original 4000 amp main switch - back-up generator, 2 x 2000 amp Square D switchboard.

# **Condition / Recommendation**

System capacity is close to full. Electrical service and distribution is 90% full. Lighting has been converted to F32 T8 lamps. Some areas (e.g. mech. room, elevators) could still be converted to T8's.

FEA - modified.

GK - Building grounding issues

# **Engineering Technology Building**

039

<b>Data &amp; Communications</b>	Value	Campus Rating	<b>5</b> (	Campus Score	<b>Review Rating</b>	<b>Review Score</b>
D60	5	100		5.0	100	5.0
Items						
	Wiring / Fib	er Optic System	S	****		
	Dis <sup>-</sup>	tribution Closets	NA			
	Acces	sible Cableways	NA			
	Speci	al Requirements	NA			

# Description

FEA - Phone system in building.

# **Condition / Recommendation**

FEA - No recommendations.

Equipment & Furnishings	Value	<b>Campus Rating</b>	(	Campus Score	Review Rating	<b>Review Score</b>
E10	1	50		0.5	100	1.0
Items						
		Equipment	3	***		
		Furnishings	3	***		

# Description

FEA - Shop equipment, laboratory casework and furnishings.

# **Condition / Recommendation**

FEA - No recommendations.

- GK Auto ID research lab housed in washroom needs to be relocated
- GK Automation lab has insufficient floor area for equipment, needs clean compressed air and 220v power improvements.
- GK Senior design lab has insufficient floor area for function

<b>Special Construction</b>	n Value	Campus Rating	Campus Score	Review Rating	Review Score
F10	1	100	1.0	100	1.0
Items					
	Special Const	ruction Systems	NA		
	(	Special Facilities	NA		
	Special Controls and	nstrumentation	NA		

# Description

N/A

FEA - Concurs.

# **Condition / Recommendation**

FEA - No recommendations.

# **Engineering Technology Building**

039

Site Conditions	Value	<b>Campus Rating</b>	(	Campus Score	<b>Review Rating</b>	<b>Review Score</b>
G10	2	100		2.0	100	2.0
Items						
	А	ccess to Building	S	****		
	g	Sidewalk & Steps	S	****		
		Exterior Lighting	S	****		
	Rain	Water Drainage	S	****		
	Ut	ilities & Services	S	****		

# Description

(none)

FEA - No comments.

# **Condition / Recommendation**

FEA - Several areas of the sidewalk surface need caulking of joints to prevent water infiltration and undermining. See photo.

FEA - North walkway has a linch ledge caused by a sidewalk settlement posing a trip hazard. Recommend replacement or grinding. See photo.

GK - Sidewalk repairs made in 2010, no current deficiencies

Safety Standards	Value	<b>Campus Rating</b>	<b>Campus Score</b>	<b>Review Rating</b>	<b>Review Score</b>
Z10	4	100	4.0	100	4.0
Description					
FEA - None observed.					
Condition / Recommendation					
(none)					
Building Suitability	Value	Campus Rating	Campus Score	Review Rating	Review Score
Z20	3	100	3.0	100	3.0
Description					
FEA - Satisfactory.					
Condition / Recommendation					
(none)					
Building Adaptability	Value	Campus Rating	Campus Score	Review Rating	Review Score
Z30	3	100	3.0	90	2.7
Description					
FEA - Easily adaptable.					
Condition / Recommendation					

# **Engineering Technology Building**

039

# **Projects**

Year	SBC Number	Description	Designer	Cost
------	------------	-------------	----------	------

# **Attachments**

Description	Pages	Author	Date
	1.0-1		

# **Pictures**

Sequence	Location	Description
1	Mechanical Room	FEA - 100% OA unit with rusted duct and piping
		(recommended for replacement).
2	Perimeter Classroom (Typical)	FEA - Typical 4-pipe fan coil unit with stopped drain, bad
		fan motor needs replacement.
3	Basement Equipment Room	FEA - Chill water and two hot water pumps
		recommended for replacement.
4	Rooftop access	FEA - Damaged, worn floor tile
5	Northwest stairwell, typical	FEA - Damaged, worn floor tile
6	South side	FEA - Single pane windows
7	Basement	FEA - Evidence of water damage in basement
8	Northwest corner, typical	FEA - Deteriorated, missing sealant in sidewalk joints
9	Northwest stairwell, typical	FEA - Damaged stair tread posing a tripping hazard
10	Northwest corner	FEA -Loose mortar joints
11	West side, typical	FEA - Spalling panels
12	Engineering Tech	FEA - Main Entrance
13	Southwest corner, typical for many areas	FEA - Stone panels showing movement
14	West side, typical	FEA - Deteriorated caulking

# **APPENDIX B**

# 2019 UNIVERSITY OF MEMPHIS MASTER PLAN



- Student Wellness + Fitness Center (Expansion)/ Intramural Fields/Fitness Course Green Space
- 3. Biochemistry and Biology Facilities
- 4. Music Center
- 5. Alumni Center/Art Gallery
- 6. STEM Research and Classroom Building
- Academic Building (Replacement for Mitchell/ Clement Hall)

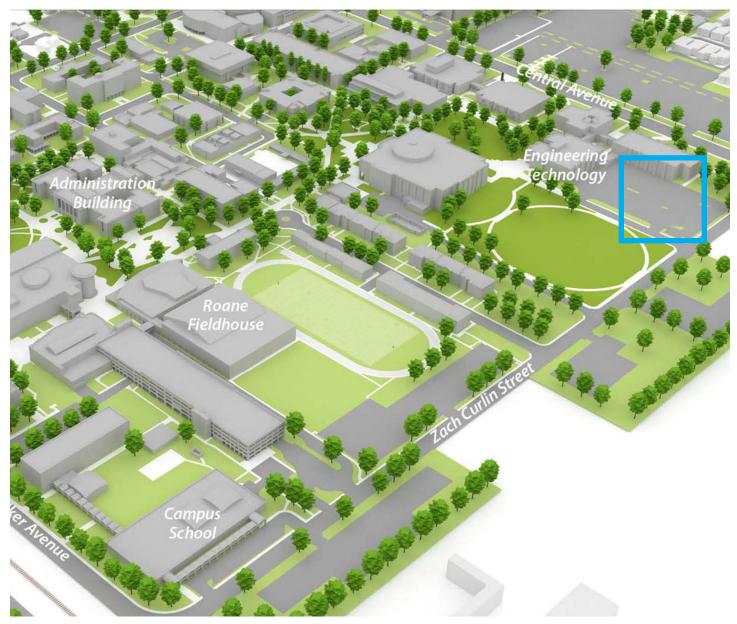
- 8. Academic Building
- 9. Entry Drive/Campus Gateway
- 11. Academic Building
  (Replacement for Ellington
  Hall)
- 12. Renovated Patterson Hall
- 13. Life Sciences Addition
- 14. Fine Arts (Replacement for Herzog Building)
- Student Residence Halls (Near Central Avenue Quad)

- 17. Research Park
- 18. Parking Structure (Near Southern Avenue)
- 19. Parking Structure (Near Patterson Avenue)
- 21. Enhanced Pedestrian Corridor
- 22. Highland Road Campus Entry
- 23. Parking Structure
- 24. Lobby Expansion
- 25. Ellipse Plaza Development

- 26. Patterson Avenue Realignment
- 27. Reconfigured Parking
- 28. Developer Student Housing
- 29. Physical Plant Expansion
- 30. Kindergarten Annex
- 31. Campus School Addition
- 32. Astroturf Field
- 33. Housing (Renovation for Mynders Hall)

<sup>\*</sup> Pending THEC Approval

# MAIN CAMPUS 2019 FUTURE VISION



From 2015 Master Plan Existing Conditions

# **BLUE BOX = PROPOSED STEM SITE**

# 2015 CAMPUS MASTER PLAN STEM CORRIDOR

# **STEM CORRIDOR**

The STEM (Science-Technology-Engineering-Math) Corridor encompasses the area along Zach Curlin Street from Walker Avenue north to Central Avenue. The northeastern corner of Central Avenue campus is currently home to the Herff College of Engineering with the presence of three engineering facilities: Engineering Administration Building, Engineering Technology and the Engineering Science Building, as well as a fourth building in the planning stages. In addition, an interdisciplinary research facility is planned for land east of the Roane Fieldhouse. The street frontage along Zach Curlin currently lacks a bold, dynamic image for the campus.

As part of the master planning process, an opportunity arose to strengthen this corridor by building upon the existing engineering facilities and the proposed science-and technology-related activities. The name STEM Corridor was suggested to help give this area a stronger campus identity. The broader goal is to co-locate STEM-related disciplines to encourage collaboration and cross-disciplinary research.

# 01. SCIENCE QUAD

The existing science facilities are primarily located within J.M. Smith Hall (est. 1966) and the Life Sciences Building (est. 1973). Both facilities are outdated in the classroom and laboratory environments that they offer to students and faculty. A long-term opportunity exists to build new state-of-the-art facilities to better address the sciences on the Central Avenue campus. A strategic goal of the University is to increase research in the areas of science and engineering. Modern facilities are needed in order to attract top faculty and students. The land within the southeast corner of campus near Walker Avenue and Zach Curlin Street is ideal for the development of a multi-disciplinary science quad. The arrangement of proposed buildings around a central open space will help lend a sense of identity to this area of campus.

# 02. INTERDISCIPLINARY RESEARCH FACILITY (PHASES I & II)

A proposal currently exists for the development of an Interdisciplinary Research Facility, divided into two phases. The building is to be located directly east of Roane Fieldhouse. The facility will be a key step to maintaining and meeting the expanding needs of valuable programs in the laboratory sciences. The current facilities are inadequate to support the modern education and research activities of UofM students and faculty. The Interdisciplinary Research Facility will bring together portions of several programs that have similar technical needs such as Biology, Chemistry and Biomedical Engineering.

# **03. ROANE STUDENT SERVICES CENTER**

The building designated here as Roane Student Services Center is currently known as Roane Fieldhouse, home to the women's basketball team. Future locations are being considered to better meet their needs. In the event that athletics vacate the space, an opportunity exists to transform the facility into a student services hub given its central location near University Center. Services such as the Educational Support Program and Student Success Program are good candidates to occupy a renovated facility. The office addition should be removed during a renovation, given the challenges it would present to effectively re-purpose for use.

# 04. ENGINEERING / CERI BUILDING

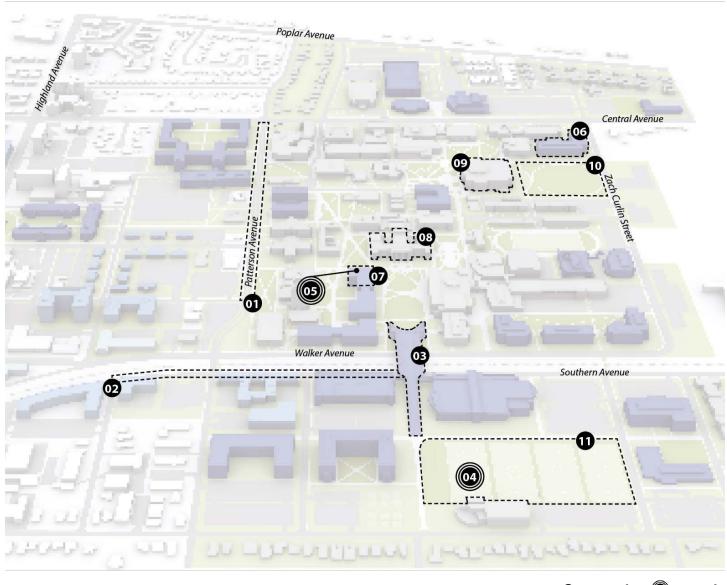
A new building is proposed in the northeast corner of campus to supplement existing space available to the College of Engineering. The facility will provide additional classroom and lab space for engineering related programs, as well as provide a new home for The Center for Earthquake Research and Information (CERI). The building is to be sited in an area of existing surface parking on Central Avenue Campus.

# 2015 CAMPUS MASTER PLAN STEM CORRIDOR



Proposed

# MAIN CAMPUS PHASING NEAR TERM 0-5 YEARS



- Proposed
- Removal

- 01. Patterson Avenue Streetscape
- 02. Southern Avenue Streetscape (Phase I)
- 03. Pedestrian Land Bridge
- 04. Student Recreation Center Removal
- 05. Mitchell Hall Removal
- 06. Engineering Research Facility / C.E.R.I.
- 07. Academic Building (Replacement for Mitchell Hall)
- 08. Administration Building (1st Floor andAuditorium Renovation)
- 09. Ned R. McWherter Library (1st Floor Learning Commons)
- 10. Ellipse Open Space Improvements
- 11. Recreation Fields

# RENDERINGS OF PROPOSED FACILITY



Aerial view of proposed STEM Research and Classroom Building



South elevation of proposed STEM Research and Classroom Building

# UNIVERSITY OF MEMPHIS STRATEGIC PLAN 2019–2023

# I FADING THROUGH INNOVATION

### **OUR VISION**

The University of Memphis is an **internationally** recognized, urban public **research** university preparing students for success in a **diverse**, **innovative**, **global** environment.

# **OUR MISSION**

We provide the **highest quality** education by focusing on **research** and **service** benefiting **local** and **global** communities.

#### **OUR PRIORITIES**

Student Success, Access and Affordability
Academic Excellence
Research and Innovation
Diversity and Inclusion

Community, Alumni and External Collaborations Brand Enhancement and Global Visibility Sustainability

# **OUR VALUES**

# **Accountability**

Integrity, transparency, excellence and the highest standards govern everything we do.

#### Collaboration

We seek partnerships both within and beyond the University to enhance our actions and our outcomes.

#### **Diversity and Inclusion**

Everyone is respected, included and given the opportunity to excel.

### Innovation

We consistently seek a better way, and we embrace challenges.

# **Service**

Our purpose is to benefit our students and society through knowledge and effort.

#### **Student Success**

We provide every student with the opportunity to excel.

# COLLEGE OF ARTS & SCIENCES STRATEGIC PLAN

The College of Arts & Sciences is the heart of the University of Memphis, an urban research University. The college provides quality undergraduate and graduate education by training students to think critically about their course of study, themselves and the world around them. Through programs of basic and applied research, the college's faculty and students increase knowledge and address the complex issues, local and global, facing all citizens.

The College of Arts & Sciences offers broad liberal arts experiences to the candidates for its own undergraduate and graduate degrees, as well as to the students of other colleges of the University. The college is divided into three grand divisions that include the Humanities, Natural Sciences and Social Sciences.

# **GOALS**

- Increase six-year graduation rates from 56% to 60% by 2020
- Increase online course offerings in Math and World Languages
- Increase external funding awards by 6%
- Increase doctoral headcount by 5% by 2020
- Increase undergraduate degrees by 10% by 2020

# HERFF COLLEGE OF ENGINEERING STRATEGIC PLAN

# **EXECUTIVE SUMMARY**

Responding to both pressures that confront nonprofit institutions of higher education nationwide and those unique challenges that confront us on the local and institutional level, the Herff College of Engineering has created a new ten-year strategic plan that departs from past strategies. Some of the highest priority factors fueling the urgency of the plan include the need to boost the low number of engineering graduates in West Tennessee (2/3 below the national average), the need to drive state funding given the new performance-based metrics, the need to adopt the University's Responsibility Center Management policies and the need to contribute to the University's ambitious research goals.

The plan was developed in a rigorous process that included multiple teams of vested stakeholders (including administration, faculty, FedEx facilitators and key staff members) and the process required agreement upon the parameters that could best be used to quantify the current status and to set quantifiable targets to assess future success. The resulting gap analysis became the foundation of the plan:

Most importantly, the group developed six strategic objectives, and workstream teams were then tasked with developing initiatives to achieve each of the strategic objectives. Their work included establishing short-range goals (2-year horizon), medium-range goals (5-year horizon) and timelines for implementing their initiatives.

# **OBJECTIVE 1: BS STUDENT GROWTH**

The overall goal is to double the number of BS degrees awarded per year to 235 by FY23.

BS Student Growth has two distinct threads which resulted in the formation of two workstream teams: one that emphasizes increasing the number and quality of BS students and another one that emphasizes student retention and success. These teams developed objectives and strategies for:

- Expanding the pool and increasing the quality of candidates
- Eliminating the drivers of attrition
- Building community of students, loyalty, experience
- Building and developing opportunities for students
- Increasing undergraduate research and student employment opportunities

# **OBJECTIVE 2: GRADUATE STUDENT GROWTH**

The overall goal is to double M.S. degrees to 80 per year and increase Ph.D. degrees 150% to 25 per year by FY23.

Success in meeting this objective is highly dependent on growth in research, since this provides much of the funding to support graduate students. Workstream teams developed objectives and strategies for:

- Expanding the pool and increasing the quality of candidates
- Expediting degree completion

# **OBJECTIVE 3: RESEARCH GROWTH**

The overall goal is to quadruple annual research expenditures to \$25M by FY23.

Workstream teams developed objectives and strategies for:

- Increasing the level of funding per faculty member
- Developing new collaborations within the College
- Developing new collaborations with other institutions
- Developing sustainable models for research centers

# **OBJECTIVE 4: IMPROVED TALENT MANAGEMENT**

The overall goal of this objective is to maintain the current student to faculty ratio.

Workstream teams, in addition to focusing on the private funding necessary to fund this ratio, also developed objectives and strategies for:

- attracting high-quality faculty members
- Increasing the number of endowed chairs and professorships
- · Growing the size and expertise of the staff

# **OBJECTIVE 5: INCREASED PRIVATE FUNDING**

The goal is to increase new private funding from an average of \$385K per year to \$1.5M per year by FY23.

Workstream teams continue to develop strategies and objectives for:

- · Maintaining campaign funding levels
- Expanding capacity

# **OBJECTIVE 6: INCREASED VISIBILITY AND REPUTATION**

The goal is for the college to be ranked by the U.S. News and World Report by FY23.

Because ranking is viewed as important by many parties such as prospective students, prospective faculty members, corporate recruiters, donors and funding agency personnel, it is imperative that the College achieves this ranking. Initiatives determined by workstream teams include:

- Increasing and improving brand exposure
- Building awareness on U.S. News and World Report judging criteria

# **CONCLUSION**

The college faces challenges (internally, institutionally and environmentally) that it has never faced before. Increasing the size and quality of the undergraduate student body is foundational in meeting those challenges. It is this growth in enrollment that will lead to a growth in faculty size and, ultimately, to an increase in research productivity. With this strategic plan, the college has set a course that focuses on the key metrics we aim to move and focuses on the specific tactics that will drive those increases.

# HERFF COLLEGE OF ENGINEERING BY THE NUMBERS

# **ENGINEERING DEGREE PRODUCTION IN THE U.S. AND TENNESSEE**

U.S. Census data and the American Society of Engineering Educators report that West Tennessee significantly underproduces engineers – in comparison to BOTH the United States and Tennessee as a whole. The Herff College of Engineering is committed to addressing this discrepancy.

	U.S.	TN	East TN	Middle TN	West TN
2012	28	21	25	26	8
2015	33	23	26	28	10

\*per 100,000 population

# **ENROLLMENT & GRADUATION RATES**

For the past 5 years:

- Overall enrollment increased 30%
- Overall undergraduate enrollment increased 37%
- Number of BS degrees awarded increased 50%

Enrollment	AY '13	AY '18	% Change
Overall	1,117	1,459	+30%
Graduate	168	162	-3%
Undergraduate	949	1,297	+37%
FTF (First Time Freshman)	131	310	+137%
BS Degrees	117	175	+50%

# **DEMOGRAPHICS**

- Underrepresented student enrollment is 42.9% higher than national average
- Female representation is almost equal with national average

Underrepresented Demographic	Total Students	% Herff Population	National Average
African American/Hispanic/ Pacific Islander/American Indian	400	30.3%	17.3%
Female	246	18.6%	22.8%

# SPACE NEEDS ANALYSIS

# SPACE NEEDS ANALYSIS BY COLLEGE | MAIN CAMPUS + PARK AVENUE

	21,4	Current 180 Headcount Stud	ent	Target Enrollment 25,500 Headcount Students		
College	Existing ASF	Guideline ASF	Surplus/ (Deficit)	Target Existing ASF	Target Guideline ASF	Surplus/ (Deficit)
Cecil C. Humphreys School of Law	37,977	40,140	(2,163)	37,977	41,535	(3,558)
College of Arts & Sciences	398,013	416,977	(18,964)	398,013	525,467	(127,454)
College of Communications and Fine Arts	206,823	225,212	(18,389)	206,823	263,821	(56,998)
College of Education, Health and Human Sciences	122,305	150,392	(28,087)	122,305	185,176	(62,871)
Fogelman College of Business and Economics	44,327	61,622	(17,295)	44,327	72,435	(28,108)
Graduate School	4,314	38,412	4,728	43,140	47,966	(4,826)
Herff College of Engineering	104,768	136,664	(31,896)	104,768	172,848	(68,080)
Lowenberg School of Nursing	23,282	24,044	(762)	23,282	28,279	(4,997)
School of Comminication Sciences and Disorders	29,187	24,442	4,745	16,400	28,153	1,034
School of Public Health	16,400	15,715	685	29,317	17,751	(1,351)
School of Urban Affairs and Public Policy	29,317	3,917	25,400	10,157	5,141	24,176
University College	10,157	12,137	(1,980)	251,535	13,559	(3,402)
Classrooms	251,535	221,703	29,832		252,341	(806)
NON-RESIDENTIAL TOTAL BY COLLEGE	1,317,231	1,371,377	54,146	1,317,231	1,654,472	(337,241)

ASF: Assignable Square Feet

# HCF CURRENT AND FUTURE SPACE NEEDS.

		2013		Target Enrollment		
Space Category	Existing ASF	Guideline ASF	Surplus/ (Deficit)	Target Existing ASF	Target Guideline ASF	Surplus/ (Deficit)
Academic Space						
Teaching Laboratories & Service	42,682	16,956	25,726	42,682	19,334	23,348
Open Laboratories & Service	11,432	8,452	2,950	11,432	10,087	1,345
Research Laboratories & Service	15,516	69,607	(54,091)	15,516	96,379	(80,863)
Academic Space Subtotal	69,630	95,045	(25,415)	69,630	125,800	(56,170)
Academic Support Space						
Offices & Service	34,261	40,945	(6,684)	34,261	46,235	(11,974)
Other Department Space	877	674	203	877	813	64
Academic Support Space Subtotal	35,138	41,619	(6,481)	35,138	47,048	(11,910)
Total	104,768	136,664	(31,896)	104,765	172,848	68,080

ASF: Assignable Square Feet

# COLLEGE OF ARTS AND SCIENCES CURRENT AND FUTURE SPACE NEEDS

	2013			Target Enrollment		
Space Category	Existing ASF	Guideline ASF	Surplus/ (Deficit)	Target Existing ASF	Target Guideline ASF	Surplus/ (Deficit)
Academic Space						
Teaching Laboratories & Service	56,126	34,621	21,505	56,126	39,199	16,927
Open Laboratories & Service	32,554	24,165	8,398	32,554	28,726	3,828
Research Laboratories & Service	108,651	139,036	(30,085)	108,951	208,435	(99,484)
Academic Space Subtotal	197,631	197,813	(182)	197,631	276,360	(78,729)
Academic Support Space						
Offices & Service	158,584	174,010	(15,426)	158,584	194,730	(36,146)
Library	422	3,141	(2,719)	422	3,330	(2,908)
Assembly & Exhibit	5,667	12,144	(6,477)	5,667	14,463	(8,796)
Physical Plant	6,247	7,214	(967)	6,247	9,284	(3,037)
Other Department Space	29,462	22,655	6,807	29,462	27,300	2,162
Academic Support Space Subtotal	200,382	219,164	(18,782)	200,382	249,107	(48,725)
Total	398,013	416,977	(18,964)	398,013	525,467	(127,454)

# **STEM RESEARCH AND CLASSROOM BUILDING SIGHTLINES COST CALCULATOR**

New Construction	ition	My School Da	atabase Average	•
Gross Square Footage 2	65000	Adding/Removing Maintenance Staff? ?	Yes ▼	View as Charts
Technical Complexity Rating (/Content/TechRatingGuide.pdf)	4 ▼	Adding/Removing Custodial Staff? ?	Yes ▼	View as Profile
Function ?	Acad/Admin ▼	Inflation % 🔞	3	
LEED Certification 2	None ▼	Annual Stewardship	Target Percentages	
Current Campus Users (FTEs) ?	17,718	Target Envelope/Mechanical %	75	
Change in Campus Users (FTEs) ?	0	Target Space/Program %	50	
New Total Campus Users (FTEs) ?	17,718			

Download Profile

Impac	t on	Ope	rations
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Impact on Campus Space

Impact on Capital

impact on operations impact on o	Sampus Space Impact on Capital			
	Current Campus	With Space Changes	Difference	
Facilities Operating Budget				
Daily Service Costs	\$20,420,597	\$20,830,188	\$409,592	Total \$
Planned Maintenance	\$1,157,080	\$1,180,289	\$23,208	Total \$
Utility Costs	\$7,575,094	\$7,757,282	\$182,188	Total \$
Total Operating Costs	\$29,152,771	\$29,767,759	\$614,988	Total \$
Maintenance Staffing				
Staffing Coverage	70	71	1.1	FTE
Supervision Levels	4.0	4.1	0.1	FTE
Materials Spending	\$925,674.89	\$940,153.49	\$14,478.60	Total \$
Custodial Staffing				
Staffing Coverage	162	165	2	FTE
Supervision Levels	4.9	5.0	0.1	FTE
Materials Spending	\$167,827.99	\$170,403.89	\$2,575.90	Total \$
Energy Consumption				
Fossil Consumption	185,237	188,065	2,828.0	MMBTU
Electric Consumption	63,500,216	64,458,735	958,519.1	kWh
Total Energy Consumption	402,026	408,127	6,100.4	MMBTU
Energy Consumption - BTU/GSF				
Fossil BTU/GSF	39,553	40,148	595.6	BTU/GS
Electric BTU/GSF	45,768	46,449	681.5	BTU/GS
Total Energy Consumption - BTU/GSF	85,320	86,598	1,277.1	BTU/GS

# CAMPUS STANDARDS SUMMARY SHEET

# DESIGN CRITERIA STEM RESEARCH AND CLASSROOM BUILDING

#### Access

- Enclosed connection to existing engineering building
- Outdoor access to labs

#### Structure

- Steel frame with masonry infill
- Structural bays sized to maximize flexibility of space
- Designed to meet current seismic codes

### Landscaping

- Will follow current campus standards to promote park-like atmosphere
- Effort to maximize protection of Legacy Trees

#### **Entrances**

- Primary entrance to be prominent and welcoming
- All secondary entrances secured

### Façade

- Use of campus standard materials brick, precast, glass
- Elevations will blend with existing buildings, yet present a forward, high tech, engineered look

# Flooring

- Durable, stain resistant, polished concrete in appropriate areas

# Doors

- Campus standard stained solid core wood with sidelight
- Double doors at labs for equipment access

### Circulation

- Exterior maintain campus circulation patterns
- Interior sufficient corridor widths to facilitate access for lab and other equipment

#### Audio/Visual

- Specialty audio visual at labs, active learning classrooms, and collaborative spaces

#### Security

- Electronic access card key system

# **Environmental Health and Safety**

- Appropriate fire alarm and suppression systems
- Hazardous material storage systems
- Eye wash and emergency showers

#### Sustainability

 Design will meet or exceed TN HPBr Standards (High Performance Building Requirements)

### Mechanical/HVAC

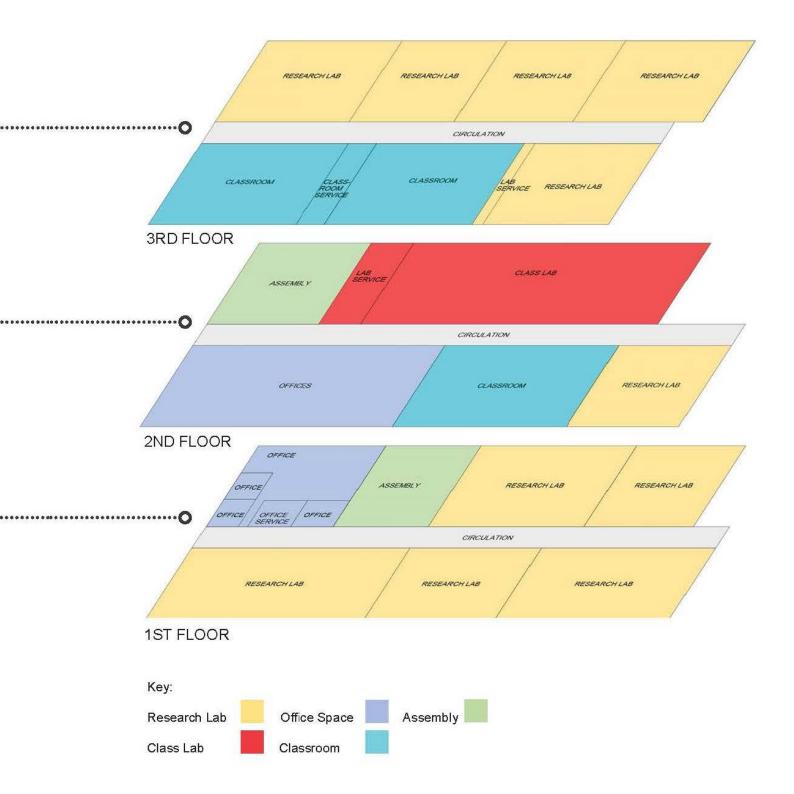
- Chiller boiler system for temperature and humidity control
- Filtered compressed air system

#### Reference for University of Memphis Campus Planning & Design Standards:

https://www.memphis.edu/cpd/design.php

# **STACKING DIAGRAMS**





# FACILITIES PLAN DETAIL REQUIREMENTS

Program Served: Interdisciplinary

Description of Functional Area: Active learning classrooms, support spaces

Total Net Assignable Square Feet (3 @ 2,100, 2 @ 400): 7,100S.F.

Description of Educational Activity to Take Place in Area: Active learning classrooms and adjoining support spaces, interactive display and flexible space to break out into smaller working groups.

Special Requirements:

Floors: Vinyl composition tile

Walls: Painted CMU

Doors: Solid core wood with narrow vision lite

Ceilings: Suspended acoustical tile

Windows: Insulating glazing

Acoustics: N/A

Electrical Service: as programmed

Plumbing Service: N/A

Atmospherics: Temperature/humidity control

Other Utilities: N/A

Safety: Sprinkler system

Communications: Data

Permanent Equipment: Smartboards, video monitors, whiteboards

Program Served: Engineering

Description of Functional Area: Advanced Manufacturing Lab

Total Net Assignable Square Feet (1 @ 3,000): 3,000 S.F.

Description of Educational Activity to Take Place in Area: Advanced manufacturing including 3d metal printing. Printing area to have static dissipative flooring, glass enclosure, argon fire suppression, and dropped ceiling. Remainder of lab to have polished concrete and exposed structure.

Special Requirements:

Floors: Static dissipative tile, polished concrete

Walls: Painted CMU

Doors: Solid core wood with narrow vision lite

Ceilings: Suspended acoustical tile with hold downs, exposed structure

Windows: Insulating exterior glazing, fire rated glass at printing enclosure

Acoustics: N/A

Electrical Service: as programmed

Plumbing Service: as programmed

Atmospherics: **Temperature/humidity control** 

Other Utilities: Nitrogen, argon, compressed air

Safety: Argon fire suppression system

Communications: Data/tele

Permanent Equipment: as programmed

Movable Equipment: as programmed

Program Served: Interdisciplinary

Description of Functional Area: Collaboration Hub

Total Net Assignable Square Feet (1 @ 1500 sf): 1500 S.F.

Description of Educational Activity to Take Place in Area: Open laboratory

Special Requirements:

Floors: Polished Concrete

Walls: Painted CMU

Doors: Solid core wood with narrow vision lite

Ceilings: Exposed Structure

Windows: Insulating glazing

Acoustics: N/A

Electrical Service: As programmed

Plumbing Service: As programmed

Atmospherics: **Temperature/humidity control** 

Other Utilities: Compressed air

Safety: Sprinkler system

Communications: Data

Permanent Equipment: N/A

Program Served: Engineering, Interdisciplinary

Description of Functional Area: Conference, Seminar

Total Net Assignable Square Feet (2 @ 300 sf, 1 @ 1200 sf): 1,800 S.F.

Description of Educational Activity to Take Place in Area: Conference, Seminar

Special Requirements:

Floors: Carpeting

Walls: Painted drywall

Doors: Solid core wood with narrow vision lite

Ceilings: Suspended acoustical tile system

Windows: Insulating glazing

Acoustics: Sound attenuation in walls

Electrical Service: As programmed

Plumbing Service: N/A

Atmospherics: Temperature/humidity control

Other Utilities: N/A

Safety: Sprinkler system

Communications: Data

Permanent Equipment: N/A

Program Served: Engineering

Description of Functional Area: Exhibit space, service area

Total Net Assignable Square Feet (1@1200, 1@400): 1600 S.F.

Description of Educational Activity to Take Place in Area: **Presentation of engineering projects and achievement** 

Special Requirements:

Floors: Carpeting

Walls: Painted drywall

Doors: Solid core wood

Ceilings: Suspended acoustical tile ceiling system

Windows: Insulating glazing

Acoustics: Sound attenuation in walls

Electrical Service: as programmed

Plumbing Service: N/A

Atmospherics: Temperature/humidity control

Other Utilities: N/A

Safety: Sprinkler system

Communications: Data

Permanent Equipment: N/A

Description of Functional Area: Offices

Total Net Assignable Square Feet (42 @ 120 – 500 sf): 6,990 S.F.

Description of Educational Activity to Take Place in Area: Offices

Special Requirements:

Floors: Carpeting

Walls: Painted drywall

Doors: Solid core wood with narrow vision lite

Ceilings: Suspended acoustical tile system

Windows: Insulating glazing

Acoustics: Sound attenuation in walls

Electrical Service: As programmed

Plumbing Service: N/A

Atmospherics: Temperature/humidity control

Other Utilities: N/A

Safety: Sprinkler system

Communications: Data/Tele

Permanent Equipment: N/A

Description of Functional Area: Office Corridors

Total Net Assignable Square Feet: N/A

Description of Educational Activity to Take Place in Area: Office corridors not including public corridors

Special Requirements:

Floors: Carpeting

Walls: Painted drywall

Doors: Solid core wood with narrow vision lite

Ceilings: Suspended acoustical tile

Windows: Insulating glazing

Acoustics: Sound attenuation in walls

Electrical Service: as programmed

Plumbing Service: N/A

Atmospherics: Temperature/humidity control

Other Utilities: N/A

Safety: Sprinkler system

Communications: N/A

Permanent Equipment: N/A

Description of Functional Area: Public Corridors

Total Net Assignable Square Feet: N/A

Description of Educational Activity to Take Place in Area: Public corridors not including office suites

Special Requirements:

Floors: Vinyl Composition Tile

Walls: Painted CMU

Doors: Solid core wood with narrow vision lite

Ceilings: Suspended acoustical tile

Windows: Insulating glazing

Acoustics: N/A

Electrical Service: as programmed

Plumbing Service: as programmed

Atmospherics: Temperature/humidity control

Other Utilities: N/A

Safety: Sprinkler system

Communications: N/A

Permanent Equipment: N/A

Program Served: Interdisciplinary

Description of Functional Area: Reception

Total Net Assignable Square Feet (1@1,000 sf): 1,000 S.F.

Description of Educational Activity to Take Place in Area: Receive visitors to the building

Special Requirements:

Floors: Carpeting

Walls: Painted drywall

Doors: Solid core wood

Ceilings: Suspended acoustical tile ceiling system

Windows: Insulating glazing

Acoustics: Sound attenuation in walls

Electrical Service: as programmed

Plumbing Service: N/A

Atmospherics: Temperature/humidity control

Other Utilities: N/A

Safety: Sprinkler system

Communications: Data/tele

Permanent Equipment: N/A

Description of Functional Area: Research Labs and Service Spaces

Total Net Assignable Square Feet (12 @ 150 – 3750 sf): 17,125 S.F.

Description of Educational Activity to Take Place in Area: Research

Special Requirements:

Floors: Polished concrete

Walls: Painted CMU

Doors: Solid core wood with narrow vision lite

Ceilings: Exposed structure

Windows: Insulating glazing

Acoustics: Sound attenuation in walls

Electrical Service: as programmed

Plumbing Service: as programmed

Atmospherics: **Temperature/humidity control** 

Other Utilities: Compressed air

Safety: Sprinkler system

Communications: Data/tele

Permanent Equipment: as programmed

Movable Equipment: as programmed

Description of Functional Area: Toilet Rooms

Total Net Assignable Square Feet: N/A

Description of Educational Activity to Take Place in Area: Toilet rooms

Special Requirements:

Floors: Unglazed 2" x2" mosaic tile flooring and base

Walls: Glazed 41/4" x 41/4" ceramic tile

Doors: Solid core wood

Ceilings: Suspended acoustical tile, moisture resistant

Windows: N/A

Acoustics: N/A

Electrical Service: as programmed

Plumbing Service: as programmed

Atmospherics: Negative air pressure

Other Utilities: N/A

Safety: Sprinkler system

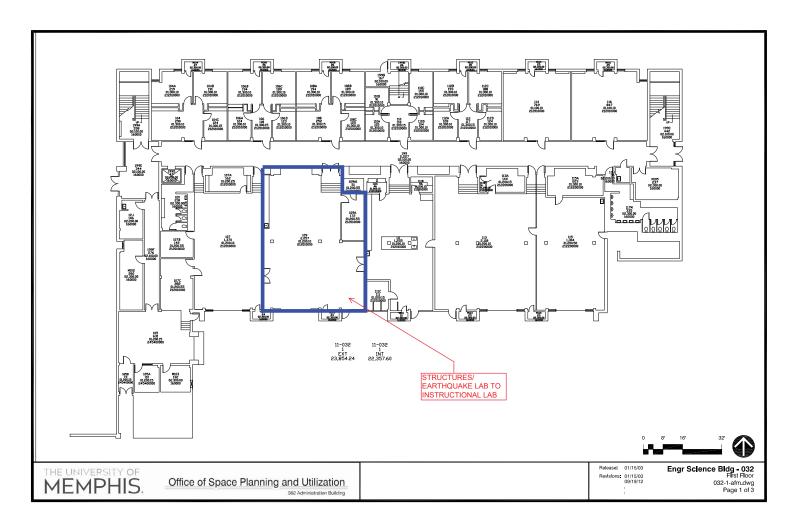
Communications: N/A

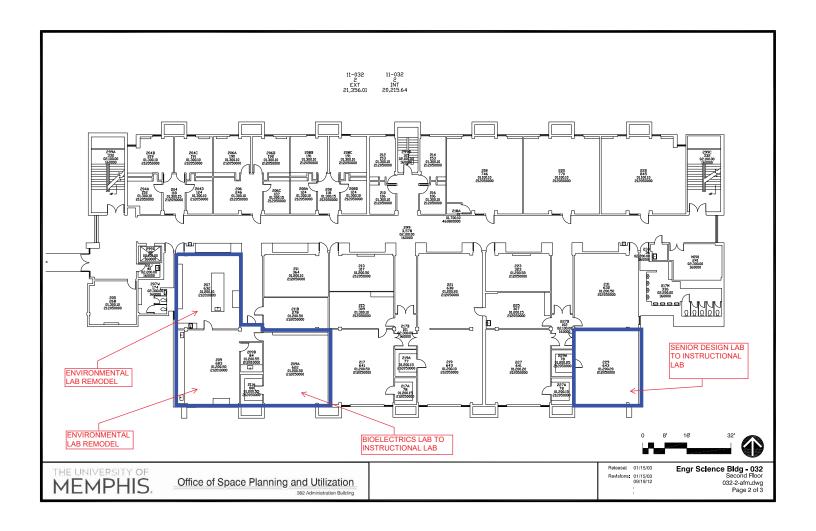
Permanent Equipment: Floor mtd. high density polyethylene toilet partitions

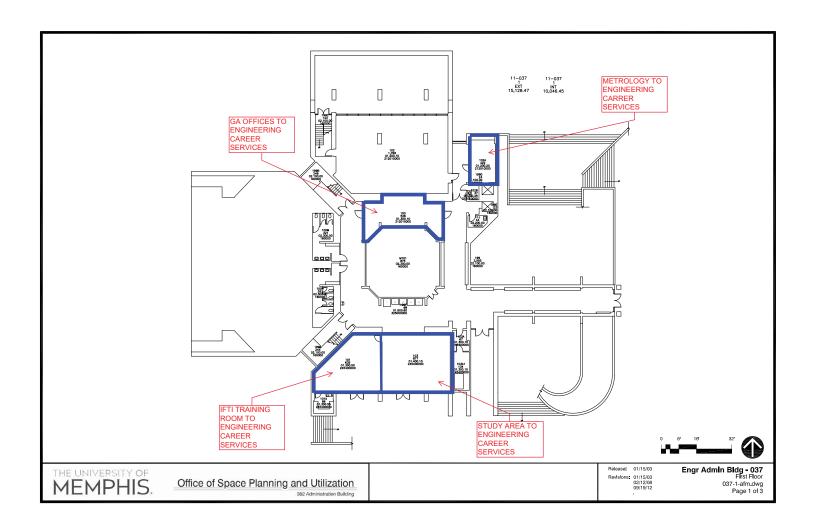
# **EXISTING BUILDINGS RENOVATION**

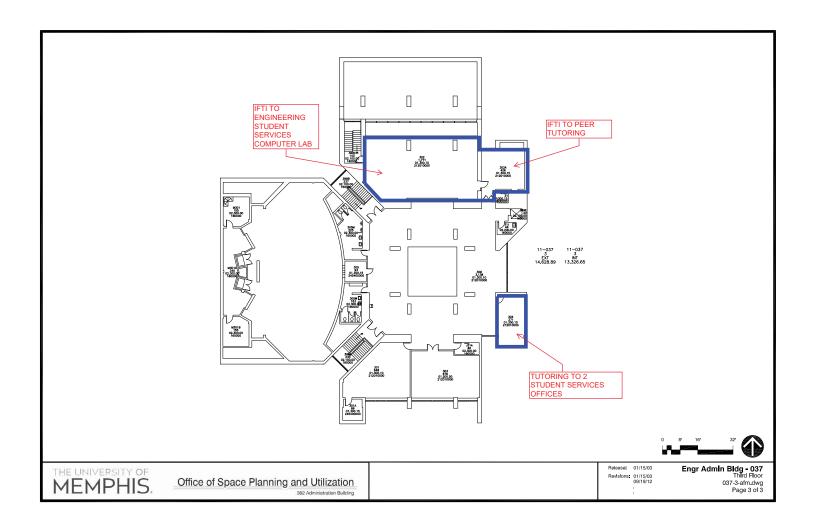
Location	Sq. Ft. Plan	Current Use
EA 100	526 Renovate for Engineering Career Services	GA Offices
EA 101	635 Renovate for Engineering Career Services	IFTI Training Room
EA 103	877 Renovate for Engineering Career Services	Study Area
EA 102A	422 Renovate for Engineering Career Services	Metrology Lab
EA 302	1771 Renovate for Engr Student Services Computer Lab	IFTI
EA 302A	426 Renovate for Peer Tutoring	IFTI
EA 304	271 Renovate to (2) student services offices	Tutoring
EA Total:	4928	
ES 109	2057 Renovate for Instructional Lab	Stuctures/Earthquake Engineering Lab
ES 109A	172 Renovate for Instructional Lab	Lab Service/Storage
ES 207	632 Environmental Lab - Needs Renovation	Environmental Lab
ES 209	683 Environmental Lab - Needs Renovation	Environmental Lab
ES 209A	622 Renovate for Laboratory/Instructional Lab	Morshed Bioelectronics Lab
ES 229	643 Renovate for Laboratory/Instructional Lab	Senior Design Lab
ES Total:	4809	
ET 113	364 Renovate - Convert to Women's Rest Room	Old Washroom - Used for AutoID Research
ET 226 ET 236	2085 Renovate - retain current use 2191 Renovate to expand automation/AutoID Lab from ET 226, add Metrology	Classroom/Lab Automation and AutoID Senior Design/Student Projects Lab
L1 200	2101 Nonovate to expand automation/Autoro Lab non E1 220, and Methology	Comor Design/Ottudent i Tojecta Lab
ET Total:	4640	
Grand Total:	14377	

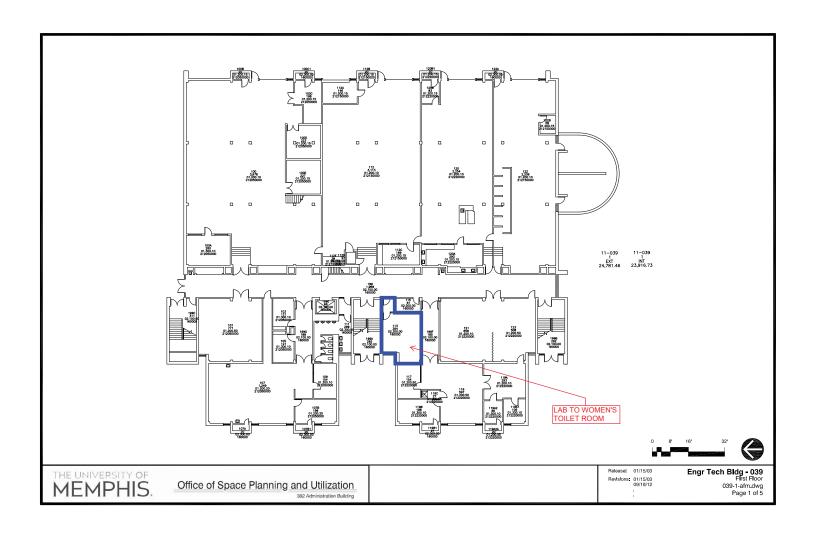
## **EXISTING FLOOR PLANS, RENOVATION DETAIL**

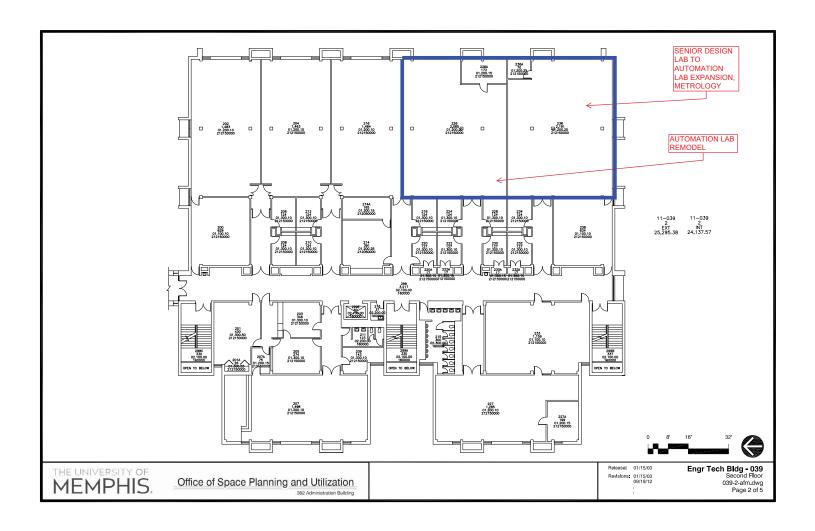












## **CURRENT OUTDATED FACILITY PHOTOS**















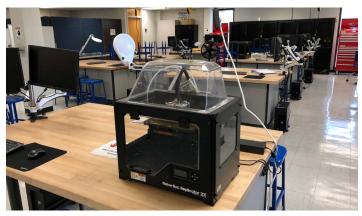






































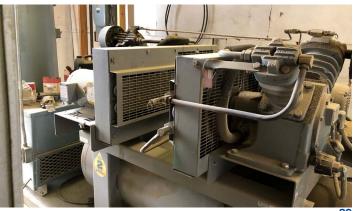












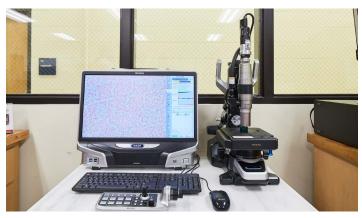
### METAL ADDITIVE MANUFACTURING LAB | OPENED SEPT. 2018



















February 5, 2018

Commissioner Stuart McWhorter Department of Finance and Administration 312 Rosa L. Parks Avenue Nashville, TN 37243

Dear Commissioner McWhorter:

The American Council of Engineering Companies of Tennessee (ACEC Tennessee) is a statewide trade association for consulting engineering firms who employ over 4,500 Tennesseans and contribute more than \$400 million annually to the state's economy. ACEC Tennessee firms provide services to government agencies, municipalities, private businesses, and major corporations in Tennessee and throughout the nation. We work to improve the business climate for engineering firms, provide leadership on regulatory and legal issues affecting our members, enhance public awareness and understanding of the value of engineering services, and influence public policy to advance the engineering industry. These are exciting times for the engineering profession. With consistent growth in engineering jobs, it is important to invest in the engineers of the future. To that end, we would like to bring a proposal from the University of Memphis to your attention.

The University of Memphis has proposed a new, state-of-the-art STEM Research and classroom building (SRCB) to better support their aggressive research agenda and prepare more students to compete for indemand STEM careers in Tennessee. The SRCB will serve as a destination for instruction and research for the Herff College of Engineering and the departments of Computer Science and Advanced Mathematics in the College of Arts and Sciences, representing 16 undergraduate and graduate majors and many interdisciplinary centers where sponsored research takes place. Importantly, the SRCB will offer a much-needed remedy to the critical space deficiency facing the Herff College of Engineering as the college exceeds recruitment, retainment, and graduation goals spelled out in their most recent strategic plan. Herff students and researchers are using repurposed locker rooms and washrooms to conduct laboratory research in a building that was designed in the 1970s. The new SRCB will provide activity-based classrooms, research labs, and learning hubs that can adapt to changing industry demands and will better prepare these students for the workforce.

STEM disciplines are fueling the 21st century workforce in statewide. This building will equip Tennessee learners and researchers with the resources and infrastructure necessary to drive Tennessee's economy and future prosperity. For these reasons, the SRCB is a priority for ACEC for the 2019 legislative session.

Please feel free to reach out should you have any questions. We look forward to working with you to advance the engineering industry throughout your term.

Sincerely,

Kasey Anderson, CAE Executive Director

#### JOHN STEVENS

STATE SENATOR  $24^{\text{TH}}$  SENATORIAL DISTRICT

REPRESENTING BENTON, CARROLL, GIBSON, HENRY, OBION AND WEAKLEY COUNTIES

## Senate Chamber State of Tennessee

LEGISLATIVE OFFICE
710 CORDELL HULL BUILDING
NASHVILLE, TN 37243
615-741-4576
1-800-449-8366 Ext. 14576

#### E-MAIL

sen.john.stevens@capitol.tn.gov

#### **NASHVILLE**

February 8, 2018

Stuart McWhorter Commissioner Department of Finance and Administration 312 Rosa L. Parks Avenue Nashville, TN 37243

Dear Commissioner McWhorter,

These are exciting times in West Tennessee and at the University of Memphis. We are grateful to have a governor and administration who recognize that accelerated and transformative growth in West Tennessee must be an absolute priority to move Tennessee forward, especially in education and workforce development. To that end, we would like to bring a proposal from the University of Memphis to your attention.

The University of Memphis has proposed a new, state-of-the-art STEM Research and classroom Building (SRCB) to better support their aggressive research agenda and prepare more students to compete for in-demand STEM careers in West Tennessee. The SRCB will serve as a destination for instruction and research for the Herff College of Engineering and the departments of Computer Science and Advanced Mathematics in the College of Arts and Sciences, representing 16 undergraduate and graduate majors and many interdisciplinary centers where sponsored research takes place. Importantly, the SRCB will offer a much-needed remedy to the critical space deficiency facing the Herff College of Engineering as the college exceeds recruitment, retainment, and graduation goals spelled out in their most recent strategic plan. Herff students and researchers are using repurposed locker rooms and washrooms to conduct laboratory research in a building that was designed in the 1970s. The new SRCB will provide activity-based classrooms, research labs, and learning hubs that can adapt to changing industry demands and will better prepare these students for the workforce.

STEM disciplines are fueling the 21st century workforce in West Tennessee and statewide. This building will equip West Tennessee learners and researchers with the resources and infrastructure necessary to drive Tennessee's economy and future prosperity. In fact, the proposal has received substantial support from major West Tennessee employers including executives from International Paper, AutoZone, FedEx, Mitsubishi Electric, Methodist Hospital, and Smith & Nephew.

The SRCB is the University of Memphis' number one legislative priority for the 2019 legislative session. The building is number 8 on THEC's list of capital funding priorities. The

SRCB is the highest ranked project in West Tennessee and the only project in West Tennessee that will directly impact undergraduate students.

Should you have any questions about this project, please do not hesitate to contact us. We look forward to discussing the U of M's future STEM Research and Classroom Building further.

Yours in service,

Senator John Stevens

V Senator Ed Jackson

Johnny W.

Representative Johnny Shaw

Representative John Deberry

Representative Kirk Haston

Senator Brian Kelsey

Brian Kelsey

Senator Joey Hensley

Representative Tom Leatherwood

Representative Chris Hurt



Via FedEx Overnight Envelope and email: Mike.Krause@tn.gov

July 9, 2018

Mr. Mike Krause Executive Director Tennessee Higher Education Commission 404 James Robertson Parkway, South Nashville, TN 37243

Dear Director Krause,

I am writing in support of the University of Memphis (UofM) funding request for a new STEM Research and Classroom Building (SRCB). As FedEx continues to optimize and expand our vast networks, our dependence upon advanced technologies increases. We constantly seek new technology to improve reliability and efficiency, and we must identify and develop a qualified workforce that can drive innovation. To these ends, we believe the proposed SRCB will attract and retain more STEM majors in the midsouth and will provide students with the tools they need to succeed with many ultimately contributing to our workforce needs.

FedEx employs over 425,000 team members globally with over 30,000 in the Memphis area alone. UofM is a significant contributor to FedEx's steady pipeline of professional talent. We conduct business in over 220 countries and territories, operate 185,000 vehicles, and fly 670+ aircraft serving over 650 airports worldwide. More than 14 million shipments are sorted and processed per day across 5,000 operating facilities. Given this volume and complexity, we continue to explore new delivery and material handling equipment, aircraft, vehicles, and advanced information and communication systems to better serve customers' needs both physical and digital.

In 2003, FedEx partnered with the UofM to create the FedEx Institute of Technology which has served as a catalyst for research in emerging technologies. In this same vein, FedEx supports the SRCB as a new opportunity to strengthen STEM programs and interdisciplinary activities. We believe the SRCB will provide an excellent platform for research and instruction that will produce the next generation of innovators.

Mr. Mike Krause Page 2 July 9, 2018

FedEx people are the foundation of the company's success and the key to our future success. Our team members have a can-do spirit that has made FedEx one of the most admired and reputable companies in the world. Each of our team members is empowered and encouraged to work smarter and more sustainably for our customers and the communities we serve.

The UofM is an important partner in this work, and we are deeply committed to its success. We strongly endorse the University's funding request for the SRCB and look forward to its expansion in STEM education and the student outcomes this addition will provide.

Thanks for your consideration.

Frederick W. Smith

Sincerely,

FWS/nh 296043

#### REPRESENTATIVE MARK WHITE

8003

425 5th Avenue, N. Suite 624 Cordell Hull Building Nashville, Tennessee

(615) 741-4415

## State of Tennessee House of Representatives

83rd HOUSE DISTRICT **Shelby County** 

ക്കരു

**CHAIRMAN** OF

> HOUSE EDUCATION COMMITTEE

NASHVILLE

January 23, 2019

Stuart McWhorter Commissioner Department of Finance and Administration 312 Rosa L. Parks Avenue Nashville, TN 37243

Dear Commissioner McWhorter,

These are exciting times in West Tennessee and at the University of Memphis. We are grateful to have a governor and administration who recognize that accelerated and transformative growth in West Tennessee must be an absolute priority to move Tennessee forward, especially in education and workforce development. To that end, we would like to bring a proposal from the University of Memphis to your attention.

The University of Memphis has proposed a new, state-of-the-art STEM Research and classroom Building (SRCB) to better support their aggressive research agenda and prepare more students to compete for in-demand STEM careers in West Tennessee. The SRCB will serve as a destination for instruction and research for the Herff College of Engineering and the departments of Computer Science and Advanced Mathematics in the College of Arts and Sciences, representing 16 undergraduate and graduate majors and many interdisciplinary centers where sponsored research takes place. Importantly, the SRCB will offer a muchneeded remedy to the critical space deficiency facing the Herff College of Engineering as the college exceeds recruitment, retainment, and graduation goals spelled out in their most recent strategic plan. Herff students and researchers are using repurposed locker rooms and washrooms to conduct laboratory research in a building that was designed in the 1970s. The new SRCB will provide activity-based classrooms, research labs, and learning hubs that can adapt to changing industry demands and will better prepare these students for the workforce.

STEM disciplines are fueling the 21st century workforce in West Tennessee and statewide. This building will equip West Tennessee learners and researchers with the resources and infrastructure necessary to drive Tennessee's economy and future prosperity. In fact, the proposal has received substantial support from major West Tennessee employers including executives from International Paper, AutoZone, FedEx, Mitsubishi Electric, Methodist Hospital, and Smith & Nephew.

The SRCB is the University of Memphis' number one legislative priority for the 2019 legislative session. The building is number 8 on THEC's list of capital funding priorities. The SRCB is the highest ranked project in West Tennessee and the only project in West Tennessee that will directly impact undergraduate students.

Should you have any questions about this project, please do not hesitate to contact us. We look forward to discussing the U of M's future STEM Research and Classroom Building further.

Yours in service,

Representative Karen Camper

House Minority Leader

Representative Ron Gant

House Assistant Majority Leader

Senator Dolores Gresham

Chairman Senate Education Committee

Representative Mark White

Chairman House Education Committee



Representative Jim Coley

Chairman House Higher Education Subcommittee

Lain Varpon

Representative Kevin Vaughan

Chairman House Facilities Licensure, and Regulations Subcommittee

Laumesh a. aklaro

Senator Raumesh Akbari

Chairman Senate Democratic Caucus

G\_\_\_

Representative Antonio Parkinson

Chairman Shelby County Delegation

Delha Moody

Representative Debra Moody

Chairman House Curriculum, Testing, and Innovation Subcommittee

Quil Byd

Representative David Byrd

Chairman House Education Administration Subcommittee

Representative Curtis Halford

Chairman Agriculture and Natural Resources Committee



February 18, 2019

Stuart McWhorter Commissioner Department of Finance and Administration 312 Rosa L. Parks Avenue Nashville, TN 37243

Dear Commissioner McWhorter.

As you know, Memphis has many workforce advantages including a robust labor force with a median age of 35 and a strong work ethic. Still, education and skills gaps present barriers for moving our economy forward. The University of Memphis is a proven partner that is systematically working to prepare Memphians for the jobs of the future. The University's investments in the Herff College of Engineering have provided our region with a growing pipeline of in-demand professionals. To that end, we would like to bring a proposal from the University of Memphis to your attention.

The University of Memphis has proposed a new, state-of-the-art STEM Research and classroom Building (SRCB) to prepare more students to compete for in-demand STEM careers in West Tennessee. The SRCB will serve as a destination for instruction and research for the Herff College of Engineering and the departments of Computer Science and Advanced Mathematics in the College of Arts and Sciences, representing 16 undergraduate and graduate majors and many interdisciplinary centers where sponsored research takes place. Importantly, the SRCB will offer a much-needed remedy to the critical space deficiency facing the Herff College of Engineering as the college. The new SRCB will provide activity-based classrooms, research labs, and learning hubs that can adapt to changing industry demands and will better prepare these students for the workforce.

STEM disciplines are fueling the 21st century workforce in Memphis and statewide. This building will equip West Tennessee learners and researchers with the resources and infrastructure necessary to drive Tennessee's economy and future prosperity. The proposal has received substantial support from many of our member companies, all major West Tennessee employers who need STEM professionals to move their businesses forward. For these reasons, the Greater Memphis Chamber supports the University of Memphis STEM Research and classroom Building. We encourage you to seriously consider fully funding this project this fiscal year.

Should you have any questions about this project, please do not hesitate to contact us. We look forward to discussing the UofM's future STEM Research and Classroom Building further.

Sincerely,

Beverly Robertson President and CEO

Greater Memphis Chamber



**Board of Directors** 

Ted Townsend

Chairman

University of Memphis

Josh Brown
Past-Chairman
Pfizer

Glenn Perdue, MBA, AVA, CFFA, CLP *Treasurer* Kraft Analytics, LLC

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Dean Hughes Smith & Nephew

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Kayla Graft SweetBio

Kyle Kamrath Vertex Pharmaceuticals

Jessica Monroe Johnson & Johnson

Pete Nelson AgLaunch

Carolyn Shelton Medtronic

Dr. Steven White St. Jude Children's Research Hospital

Brian Laden Appello Pharmaceuticals

Steve Bares Memphis Bioworks

Hunter Rost Waller, Lansden, Dortch & Davis, LLP

Shawn Glinter Pendant Bioscience

Judsen Schneider Nashville BioSciences

Teddy Van Opstal President, Academic Alliance Vanderbilt University

Giri Kumar Chandaka President, Academic Alliance UT Health Science Center February 8, 2019

Stuart McWhorter Commissioner Department of Finance and Administration 312 Rosa L. Parks Avenue Nashville, TN 37243

Dear Commissioner McWhorter,

These are exciting times for the life science industry. Innovations in health, energy, and agriculture are healing, fueling, and feeding Americans from coast to coast. The life science industry in the U.S. has reached \$2 trillion in annual economic impact and accounts for 1.74 million direct jobs paying nearly 80 percent more than the average U.S. worker. In Tennessee, our sector continues to grow. According to the most recent report from BIO and TEConomy, our industry has expanded to more than 1,500 life science establishments in Tennessee and the average wage for our industry is \$82,000 a year. Memphis is home to St. Jude Children's Research Hospital and is the second-largest center for orthopedic devices in the U.S. The medical device industry is the largest exporting sector of the state at \$3.2 billion each year, and much of that from West TN.

With access to industry representation of all stages, Life Science Tennessee is committed to economic growth in Tennessee's life science sector. Our members include companies, universities, research institutions, government and economic development groups and other industry associations involved in the discovery and application of life science products and related services that improve the health and well-being of people throughout the Tennessee and the world. To that end, we would like to bring a proposal from the University of Memphis to your attention.

The University of Memphis has proposed a new, state-of-the-art STEM Research and classroom Building (SRCB) to better support their aggressive research agenda and prepare more students to compete for in-demand STEM and life science careers in Tennessee. The SRCB will serve as a destination for instruction and research for the Herff College of Engineering and the departments of Computer Science and Advanced Mathematics in the College of Arts and Sciences, representing 16 undergraduate and graduate majors and many interdisciplinary centers where sponsored research takes place. Importantly, the SRCB will offer a much-needed remedy to the critical space deficiency facing the Herff College of Engineering as the college exceeds recruitment, retainment, and graduation goals spelled out in their most recent strategic plan. Herff students and researchers are using repurposed locker rooms and washrooms to conduct laboratory research in a building that was designed in the 1970s. The new SRCB will provide activity-based classrooms, research labs, and learning hubs that can adapt to changing industry demands and will better prepare these students for the workforce.

STEM disciplines are fueling the 21st century workforce in statewide and to fuel our industry growth, we need more graduates from STEM-related fields. This building will equip West Tennessee learners and researchers with the resources and infrastructure necessary to drive Tennessee's economy and future prosperity. For these reasons, the SRCB is a priority for Life Science Tennessee for the 2019 legislative session.

Should you have any questions about this project, please do not hesitate to contact us. We look forward to working with you to advance the life science industry through your term.

Most sincerely,

Steve Bares, Ph.D.

Stewn Baris

Past Chairman, Life Science Tennessee

Predident and Exec. Director, Memphis Bioworks

Abby Trotter Executive Director Life Science Tennessee Smith & Nephew, Inc. 7135 Goodlett Farms Parkway Cordova, TN 38016 USA

1-901-396-2121 1-800-821-5700 www.smith-nephew.com



February 7, 2019

Governor Bill Lee 1st Floor, State Capitol Nashville, TN 37243

Dear Governor Lee,

I am writing in support of the University of Memphis (UofM) funding request for the STEM Research and Classroom Building (SRCB). The potential of the SRCB to blend classroom instruction and research opportunities is exciting to Smith & Nephew. The SRCB will enhance student learning in critical areas and create a workforce that understands current and future technologies. STEM graduates of the UofM are prepared to lead and innovate, and the SRCB will attract more students to the STEM fields and provide those students with the tools to succeed.

Smith & Nephew supports healthcare professionals in more than 100 countries in their daily efforts to improve the lives of their patients. We do this by taking a pioneering approach to the design of our advanced medical products and services, by securing wider access to our diverse technologies for more customers globally, and by enabling better outcomes for patients and healthcare systems. We cannot do this work without our team of approximately 16,000 highly skilled employees worldwide and approximately 2,500 in Memphis, Tennessee.

Education, particularly in the areas of STEM, must be ever-evolving and continuously improving. The SRCB will provide UofM students with the resources and opportunities to learn in an environment that will equip them to be innovators in the healthcare industry. Innovation, one of our three core values, means taking a pioneering approach to the design of our products and services, being energetic, creative and passionate about everything we do. At Smith &Nephew, we are forward looking; anticipating customers' needs, overcoming barriers and developing opportunities. We encourage and support new ideas, and are always seeking to improve the lives of healthcare professionals and the patients they treat with effective and safe product and service innovations.

To ensure a constant pipeline of innovative professionals in the healthcare industry, we are looking for opportunities, such as the SRCB, to strengthen STEM programs that will have an impact on our workforce. It is imperative that our employees have the skills and education necessary to compete on a global platform. We are confident that the instruction and research housed in the SRCB will provide those opportunities for future Smith & Nephew team members. We are especially excited to see more opportunities to collaborate with the Herff College of Engineering, specifically in internships for Herff students.

At Smith & Nephew, investment in our people is an investment in our future. This philosophy and approach to managing talent supports our objective to be recognized as a great place to work. This philosophy empowers our leaders and managers to make better decisions about people, build a sustainable talent pipeline, and operate more effectively and inclusively. We consider the University of Memphis a critical partner in this work. For more than 50 years, Smith & Nephew has actively participated in community development activities in the



MidSouth. Because of this partnership and commitment to our community, we are committed to the University of Memphis and its mission.

The SRCB is the University of Memphis' number one legislative priority for the 2019 legislative session. The building is number 8 on THEC's list of capital funding priorities. The SRCB is the highest ranked project in West Tennessee and the only project in West Tennessee that will directly impact undergraduate students. On behalf of Smith & Nephew plc, I offer my support for the University of Memphis' funding request for the STEM Research and Classroom Building. We look forward to the opportunities for further engagement with the UofM that this building will provide.

Sincerely,

Laura S. Whitsitt

Senior Vice President

Research & Development Orthopaedics

CC: Commissioner Stuart McWhorter, Department of Finance and Administration

Speaker Glen Casada

Lt. Governor Randy McNally

Chairman Susan Lynn

Chairman Bo Watson



MARK S. SUTTON

Chairman and Chief Executive Officer 6400 POPLAR AVENUE MEMPHIS TN 38197 USA

T 901 419 7804 F 901 419 4633

February 8, 2019

Governor Bill Lee 1st Floor, State Capitol Nashville, TN 37243

Dear Governor Lee:

International Paper strongly supports the University of Memphis funding request for the STEM Research and Classroom Building (SRCB). The proposed SRCB will expand the university's capacity and provide the facilities required for STEM research and instruction in several disciplines of interest to International Paper, including engineering, information technology and supply chain management.

The SRCB will blend classroom instruction and research opportunities that will enhance student learning in the foundational areas of science, technology, engineering and mathematics. As a result, we believe that graduates will be equipped with the knowledge and skills to make significant contributions to our industry.

International Paper's vision is to be among the most successful, sustainable and responsible companies in the world. As one of the world's leading producers of fiber-based packaging, pulp and paper, we transform renewable resources into recyclable products that people depend on every day. In order to pursue our vision and objectives, we need to attract, engage and retain college graduates with the skills to operate our manufacturing and converting facilities, improve our processes and create innovative products.

We believe that the proposed SRCB will attract and retain more STEM majors in the Midsouth by providing students with the tools they need to succeed, and will ultimately contribute to our workforce needs.

The SRCB is the University of Memphis' number one legislative priority for the 2019 legislative session. The building is number 8 on THEC's list of capital funding priorities. The SRCB is the highest ranked project in West Tennessee and the only project in West Tennessee that will directly impact undergraduate students.

International Paper has supported the University of Memphis for several decades and continues to invest in the University's success. On behalf of International Paper, I offer my strong support for the University of Memphis funding request for the STEM Research and Classroom Building.

Thank you for your consideration of this proposed project.

M S. Sut

Sincerely.

CC: Commissioner Stuart McWhorter, Department of Finance and Administration

Speaker Glen Casada

Lt. Governor Randy McNally

Chairman Susan Lynn Chairman Bo Watson

## Medtronic

#### Medtronic

Tommy Carls Spinal & Biologics 1800 Pyramid Place Memphis, TN 38132 USA www.medtronic.com

February 1, 2019

Governor Bill Lee 1<sup>st</sup> Floor, State Capitol Nashville, TN 37243

Dear Governor Lee,

Medtronic strongly supports the University of Memphis (UofM) funding request for the STEM Research and Classroom Building (SRCB). The SRCB will blend classroom instruction and research opportunities that enhance student learning in critical areas and create a workforce that understands current and future technologies.

Powered by our unwavering Mission to alleviate pain, restore health, and extend life, Medtronic is transforming healthcare with technology and innovation. We are collaborating with stakeholders worldwide to rethink the status quo and take healthcare further. The power of technology not only helps align value for providers and stakeholders, it also drives innovation. The integrated and collaborative nature of the SRCB is exciting to Medtronic.

We are confident the instruction and research housed in the SRCB will produce the next generation of healthcare innovators.

The concept of meaningful innovation is central to what we do at Medtronic every day. We need innovators who see beyond the obvious and envision more than incremental change. It is imperative that our employees have the skills and education necessary to compete on a global platform. Through opportunities provided in the SRCB, students will receive hands-on training and research experience that will produce a better prepared workforce. We are especially excited to see more opportunities to collaborate with the Herff College of Engineering, specifically in internship opportunities for Herff students.

The SRCB is the University of Memphis' number one legislative priority for the 2019 legislative session. The building is number 8 on THEC's list of capital funding priorities. The SRCB is the highest ranked project in West Tennessee and the only project in West Tennessee that will directly impact undergraduate students.

Governor Bill Lee February 1, 2019 Page 2

On behalf of Medtronic, I offer my support for the University of Memphis' funding request for the STEM Research and Classroom Building. We look forward to the opportunities for further engagement with the UofM that this building will provide.

Sincerely,

Tommy Carls

Vice President, Research and Development

Medtronic Spinal & Biologics

Donny Carl

cc: Commissioner Stuart McWhorter, Department of Finance and Administration

Speaker Glen Casada

Lt. Governor Randy McNally

Chairman Susan Lynn Chairman Bo Watson



February 1, 2019

Governor Bill Lee 1<sup>st</sup> Floor, State Capitol Nashville, TN 37243

Dear Governor Lee,

I am writing in support of the University of Memphis (UofM) funding request for the STEM Research and Classroom Building (SRCB). The potential of the SRCB to blend classroom instruction and research opportunities is exciting to Elos Medtech Onyx. The SRCB will enhance student learning in critical areas and create a workforce that understands current and future technologies.

The SRCB is in alignment with our corporate philosophy, "from collaborations come solutions." The SRCB will offer students and faculty the environment and resources to explore collaborative ideas and develop innovative solutions across disciplines.

Founded in 1990, Onyx Medical has always been shaped by its customer relationships and the desire to meet the ever-growing requirements of our global partners. Now, as an integral part of Elos Medtech – and with specialized medical manufacturing facilities in the US, Europe and Asia, a strong education and training partner, such as the UofM, is critical to us. Through the addition of the SRCB, we feel the university will be in a position to continue recruiting the best students and equipping them for careers in STEM-related fields, particularly engineering. In September, Onyx embarked on an \$11 million expansion that will increase our need for trained STEM graduates. Our workforce, along with many others in the region, rely heavily upon the UofM to provide a quality workforce pipeline.

The SRCB is the University of Memphis' number one legislative priority for the 2019 legislative session. The building is number 8 on THEC's list of capital funding priorities. The SRCB is the highest ranked project in West Tennessee and the only project in West Tennessee that will directly impact undergraduate students.

On behalf of Elos Medtech Onyx, I offer my support for the University of Memphis' funding request for the STEM research and Classroom building. We look forward to the opportunities for further engagement with the UofM that this building will provide.

Sincerely,

Jodie Gilmore Managing Director

CC:

Commissioner Stuart McWhorter, Department of Finance and Administration

Speaker Glen Casada

Lt. Governor Randy McNally

Chairman Susan Lynn

Chairman Bo Watson



February 12, 2019

Governor Bill Lee 1<sup>st</sup> Floor, State Capitol Nashville, TN 37243

Dear Governor Lee,

The Greater Memphis Medical Device Council (GMMDC) strongly supports the University of Memphis (UofM) funding request for the STEM Research and Classroom Building (SRCB). The vision of the GMMDC is to strengthen job growth through the development of a world class comprehensive workforce that serves the Memphis area biomedical industry. We are confident the instruction and research housed in the SRCB will produce the next generation of healthcare innovators.

Memphis has become the heart of innovation and growth in the medical device industry, advancing groundbreaking diagnostic, preventive, and treatment technologies that save and enhance lives. The GMMDC works to create successful collaborations among biomedical member companies to identify shared employee development needs. The GMMDC membership, composed of 56 members and associate members, recognizes that the SRCB will offer students and faculty the environment and resources necessary to explore collaborative ideas and develop innovative solutions across disciplines.

Since the Memphis medical device industry's employment rate has grown 50% since 1999 – more than four times the national rate of growth – a strong education and training partner, such as the UofM, is critical to our members. Our members depend on a steady pipeline of talented graduates who can immediately contribute to our ongoing technology and engineering needs. Through opportunities provided in the SRCB, students will receive hands-on training and research experience that will produce a better prepared workforce.

The SRCB is the University of Memphis' number one legislative priority for the 2019 legislative session. The building is number 8 on THEC's list of capital funding priorities. The SRCB is the highest ranked project in West Tennessee and the only project in West Tennessee that will directly impact undergraduate students.

On behalf of GMMDC, I offer my support for the University of Memphis' funding request for the STEM research and classroom building. We look forward to the opportunities for further engagement with the UofM that this building will provide.

Sincerely,

## Jodie Gilmore

GMMDC co-chair on behalf of The GMMDC board

CC: Commissioner Stuart McWhorter, Department of Finance and Administration

Speaker Glen Casada

Lt. Governor Randy McNally

Chairman Susan Lynn

Chairman Bo Watson



123 South Front Street, Memphis, TN 38103 Phone (901) 495-6500

February 1, 2019

Governor Bill Lee 1st Floor, State Capitol Nashville, TN 37243

Re: University of Memphis STEM Research and Classroom Building

Dear Governor Lee,

We are writing in support of the University of Memphis' funding request for the STEM Research and Classroom Building (SRCB). For more than 39 years, AutoZone has been committed to providing WOW! Customer Service in the automotive aftermarket industry. AutoZone was founded in Memphis and is committed to building a strong pipeline of local talent. We believe that the proposed UofM's SRCB will attract and retain more STEM majors to the greater Memphis area by providing students with the tools they need to succeed, and will ultimately contribute to our workforce needs long into the future.

AutoZone did not become the leading retailer and a leading distributor of the auto parts and accessories in the United States without providing leadership and innovation in supply chain and technology. AutoZoners pledge to always put customers first. In addition, we pledge to provide our customers with the best merchandise at the right price. Our goal is to always have the right part or accessory on hand when the customer needs it. That means we have to operate a very robust supply chain to meet those needs. In the last year, we have opened two new state-of-the-art distribution centers and we continue to expand our Hubs and MegaHubs in-market networks.

Additionally, over the next several years AutoZone will continue to make significant investments in leveraging information technology and the internet. This will continue to ensure that our AutoZoners have the best, most reliable tools available and that our customers have an ever-improving omni channel shopping experience. The focused activities in and around the proposed SRCB will play a crucial role in positioning STEM graduates to contribute meaningfully toward these key business objectives.

For many years, AutoZone has supported the Herff College of Engineering and its STEM programs, including the AutoZone STEM summer camps as well as the STEM Ambassador Program. The University of Memphis' plans to create the SRCB will further enhance and strengthen these programs and ensure that students have the very best facilities and resources that will equip them to be innovative leaders.

The SRCB is the University of Memphis' number one legislative priority for the 2019 legislative session. The building is number 8 on THEC's list of capital funding priorities. The SRCB is the highest ranked project in West Tennessee and the only project in West Tennessee that will directly impact undergraduate students.

On behalf of AutoZone, please accept our support for this funding request for the STEM Research and Classroom Building. We are committed to the University's success and look forward to our continued partnership.

Sincerely,

Mark Finestone

**Executive Vice President** 

Merchandising, Supply Chain and Marketing

**Customer Satisfaction** 

Bill Giles

CFO, Executive Five President

Finance and IT

**Customer Satisfaction** 

Rick Smith

Senior Vice President

**Human Resources** 

Relations

**Customer Satisfaction** 

David McKinney

Vice President

Government and Community

**Customer Satisfaction** 

CC: Commissioner Stuart McWhorter, Department of Finance and Administration

Speaker Glen Casada

Lt. Governor Randy McNally

Chairman Susan Lynn

Chairman Bo Watson



D. Bryan Jordan Chairman President & CEO

February 1, 2019

Governor William Byron Lee 1st Floor, State Capitol Nashville, TN 37243

Dear Governor Lee,

As a leader in the finance industry, First Horizon National Corporation/First Tennessee Bank (FTB) is pleased to support the University of Memphis (UofM) funding request for the STEM Research and Classroom Building (SRCB).

The collaborative and interactive nature of the SRCB is aligned with our culture at FTB. We value innovation - asking the tough questions and seeking new and innovated solutions. Innovation doesn't occur in a silo. Collaboration is key, and the SRCB at the UofM will offer an environment that encourages both collaboration and innovation. Students will receive hands-on training that will translate into a better prepared workforce.

We take our commitment to help care for our customers' investments very seriously, and protecting their information is critical. The inclusion of a cybersecurity lab in the SRCB is of particular interest to FTB. The financial industry has long been the target of cybercriminals, but never more so than today. Cyber risks continue to evolve, as attackers search for new and convenient entry points daily. A lab at the UofM dedicated to cybersecurity research and training for the future workforce will serve not only our needs, but the needs of the entire financial industry.

The SRCB is the University of Memphis' number one legislative priority for the 2019 legislative session. The building is number 8 on THEC's list of capital funding priorities. The SRCB is the highest ranked project in West Tennessee and the only project in West Tennessee that will directly impact undergraduate students.

For more than 150 years FTB has strengthened communities through our strategic partnerships. We are proud to partner with the University of Memphis and to support its request for capital funding from the state of Tennessee for the STEM Research and Classroom Building.

Sincerely,

CC: Commissioner Stuart McWhorter, Department of Finance and Administration

Speaker Glen Casada

Lt. Governor Randy McNally

Chairman Susan Lynn

Chairman Bo Watson

**Chairman Andy Holt** 

First Horizon National Corporation 165 Madison Avenue, Memphis, TN 38103 Phone (901) 523-4194 Fax (901) 523-5762 E-mail bjordan@fitsthorizon.com



#### MITSUBISHI ELECTRIC POWER PRODUCTS, INC.

2865 Riverport Road Memphis, Tennessee, 38019

Phone: (901) 566-3780 joe.durante@meppi.com Home page: www.meppi.com

March 24, 2019

Mr. Mike Krause Executive Director Tennessee Higher Education Commission 404 James Robertson Parkway, South Nashville, TN 37243

Dear Mr. Krause,

I am writing to offer my strong support for the University of Memphis (UofM) funding request for the STEM Research and Classroom Building (SRCB). The integrated and collaborative nature of the SRCB is exciting to Mitsubishi Electric Power Products, Inc. (MEPPI). The SRCB is in alignment with our corporate statement, "Changes for the Better," which represents our goal and attitude to always strive to achieve "something better," as we continue to change and grow.

Mitsubishi Electric Corporation has more than 142,000 employees around the globe. Memphis has been home to MEPPI's Power Transformer Division since 2013. Memphis was strategically chosen because of its pro-business environment, a strong logistics infrastructure, and attractive quality of life and the ability for the company to recruit and retain employees.

A strong education and training partner, such as the UofM, is critical to us. Through the addition of the SRCB, we feel the university will be positioned to continue recruiting the best students and equipping them for careers in STEM-related fields, particularly engineering. Our workforce, along with many others in the region, rely heavily upon the university to provide a quality workforce pipeline for MEPPI.

On behalf of Mitsubishi Electric Power Products, Inc., I offer my support for the University of Memphis funding request for the STEM Research and Classroom Building. We look forward to the opportunities for further engagement with the UofM that this building will provide.

Sincerely,

Joe Durante General Manager

Power Transformer Division



February 11, 2019

Governor Bill Lee 1st Floor, State Capitol Nashville, TN 37243

#### Dear Governor Lee:

On behalf of Methodist Le Bonheur Healthcare, I am writing to offer my support of the University of Memphis (UofM) funding request for the STEM Research and Classroom Building (SRCB). The proposed SRCB offers an exciting opportunity to combine interdisciplinary learning opportunities with research and application. We support UofM's efforts to expand its capacity and believe that the SRCB will provide the necessary infrastructure to prepare STEM graduates for future workforce demands.

Methodist Le Bonheur Healthcare is one of Tennessee's largest private employers and employs almost 8,000 people in the Memphis area alone. With seven hospitals and multiple outpatient and diagnostic centers, Methodist Le Bonheur Healthcare depends on a steady pipeline of talented graduates who can immediately contribute to our ongoing technology needs. We would not be able to achieve our increasingly demanding business objectives without a workforce of highly skilled employees who provide technology solutions for our providers and ensure better outcomes for patients. The SRCB will attract more students who major in STEM fields and provide those students with the tools they need to succeed.

For the last 100 years, Methodist Le Bonheur Healthcare has served as a beacon of expertise and care in our community and region. We are committed to the future of medicine and dedicated to improving healthcare outcomes for our community. It is one of the reasons Methodist Le Bonheur Healthcare was once again named the 'Best Hospital in Memphis' by U.S. News and World Report. To ensure a constant pipeline of innovative professionals in the healthcare industry, we continually seek opportunities to strengthen STEM programs that will have a significant impact in our industry. As a recognized healthcare leader, Methodist Healthcare understands the importance of technology, as well as the importance of the people behind the technology. We are confident that the instruction and research housed in the SRCB will produce the next generation of healthcare innovators.

The SRCB is the University of Memphis' number one legislative priority for the 2019 legislative session. The building is number 8 on THEC's list of capital funding priorities. The SRCB is the highest ranked project in West Tennessee and the only project in West Tennessee that will directly impact undergraduate students.

#### Michael O. Ugwueke, DHA, FACHE

President and Chief Executive Officer, Methodist Le Bonheur Healthcare
President and Chief Executive Officer, Methodist Healthcare – Memphis Hospitals
1211 Union Avenue – Suite 700 – Memphis, TN 38104...901-516-0543....Fax: 901-516-0842

Methodist Healthcare has been a strategic partner of the University of Memphis for many years, and we consider this partnership a key resource in not only fueling our talent pipeline, but also in providing an opportunity to leverage new technologies for our sector. We look forward to the opportunities for further engagement with the UofM that this building will provide.

On behalf of Methodist Le Bonheur Healthcare, I offer my strong support for the University of Memphis' funding request for the STEM Research and Classroom Building.

Sincerely,

Michael O. Ugwueke, DHA, FACHE

President / CEO

cc: Commissioner Stuart McWhorter, Department of Finance and Administration

Speaker Glen Casada

Lt. Governor Randy McNally

Chairman Susan Lynn

Chairman Bo Watson

February 1, 2019

Governor Bill Lee 1st Floor, State Capitol Nashville, TN 37243

Dear Governor Lee,

On behalf of Tennessee Valley Authority (TVA), I am writing to offer my strong support for the University of Memphis (UofM) funding request for the STEM Research and Classroom Building (SRCB). We support UofM's efforts to expand its capacity and believe the SRCB will provide the necessary infrastructure to prepare STEM graduates for future workforce demands.

TVA is a corporate agency of the United States that provides electricity for business customers and local power companies serving 10 million people in parts of seven southeastern states. In addition to operating and investing its revenues in its electric system, TVA provides flood control, navigation and land management for the Tennessee River system and assists local power companies and state and local governments with economic development and job creation.

Through our partnerships with other economic development organizations, we help foster capital investment and job growth in the area. TVA Economic Development works to attract new companies—which results in more jobs and investments in the Valley—and to engage existing businesses and industries to help them grow in a sustainable way. Together, we help the region create opportunities that make life better.

A strong education and training partner, such as the UofM, is critical to us. With the SRCB, students will receive hands-on training and research experience, positioning the University to continue recruiting the best students, while equipping them for careers in STEM-related fields. As TVA focuses on STEM research, the addition of the SRCB will be an innovative way for us to collaborate with the University. This is a grand opportunity for science and technology to work together, moving Tennessee forward.

The SRCB is the University of Memphis' number one legislative priority for the 2019 legislative session. The building is number 8 on THEC's list of capital funding priorities. The SRCB is the highest ranked project in West Tennessee and the only project in West Tennessee that will directly impact undergraduate students.

On behalf of Tennessee Valley Authority, I offer my support for the University of Memphis funding request for the STEM Research and Classroom Building. We look forward to the opportunities for further engagement with the UofM that this building will provide.

Sincerely,

Laura Campbell

Lame J. Campbell

CC: Commissioner Stuart McWhorter, Department of Finance and Administration

