LIGHTING DESIGN

PREPARED FOR

POWER AND LIGHTING SYSTEMS



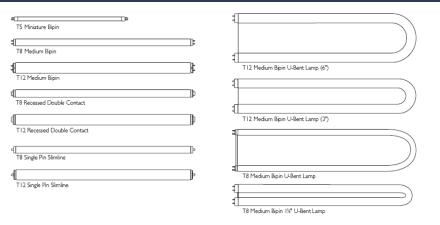
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Lighting Fixtures

Lighting Fixture Schedule										
Fixture	Fixture	Manufacturer	Lamps per	Watts	Wattage	Code of	Description			
Туре	Shape	Manufacturer	Fixture	per Lamp	per Fixture	Bulb	Description			
Α	2 X 2		1	400	400		Metal Halide			
В	1 X 4	Phillips	1	32	32	F32T8	Tube Single Bulb			
С	1 X 2	Phillips	1	17	17	FIT8-TJ741	Tube Single Bulb			
D	Wash 4'	Phillips	1	32	32	F32T8	Tube Single Bulb			
E	2 X 4		2	32	64	F32T8	2 Bulb			
F	2 X 2		2	32	64	F32T8	Honeycomb/ 2 U-shaped Bulb			
G	FCL	Phillips	1	15	15	FCL	run of the mill Screw Type			





Bulb Shapes (Not Actual Sizes)

The size and shape of a bulb is designated by a letter or letters followed by a number: The letter indicates the shape of the bulb while the number indicates the diameter of the bulb in eighths of an inch. For example, "T12" indicates a tubular shaped bulb having a diameter of $1\frac{1}{2}$ or $1\frac{1}{2}$ inches. The following illustrations show some of the more popular bulb shapes and sizes.

Existing Light Design

First Floor Library Lighting Audit									
Room	Ligting	Quantity	Room Dimensions		Room	Watts per	Ballast	Total	Density
	Туре		Length	Width	Area	Fixture	Wattage	Wattage	Watts/ft ²
Large Main	Α	10			2600	400	0	4000	1.5385
	В	85			2863	32	138	2582	
Referance Area	С	5				17	0	85	0.9749
	D	4				32	4	124	
Stair 1/elevator	В	7			443	32	8	216	0.6569
Stall l/elevator	G	5				15	0	75	0.0303
Circulation Desk	E	8			280	64	16	496	1.7714
Office Space	В	38			1600	32	68	1148	0.8025
Office Space	С	8				17 0 136	0.0023		
Center for	В	22			1250	32	36	668	0.6024
Learning	С	5				17	0	85	0.0024
Room 110	В	5			137	32	6	154	
1000111110	С	2				17	0	34	1.3723
Room 111	В	2			110	32	4	60	
100III III	С	2				17	0	34	0.8545
Library Dir.	В	8			315	32	8	248	
Library Dir.	С	5				17	0	85	1.0571
Room 105	В	1			32	32	2	30	0.9375
Mens 108	В	5			184	32	6	154	0.8370
Womens 109	В	5			215	32	6	154	0.7163
Room 106	В	1			245	32	2	30	0.1224
Corridor 1	В	13			360	32	20	396	1.1000
01 : 0		_							

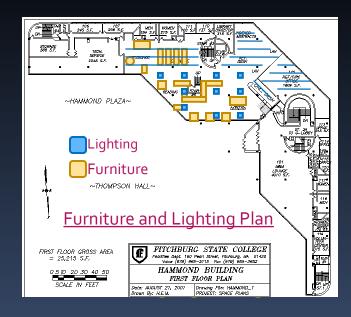
<u>First Floor</u>						
Room Description	Lux	<u>Foot Candle</u>				
R 110	82	75				
R 111	82	75				
Janitor closet	12	11				
Mens Bathroom	41	39				
Womans Bathroom	41	39				
Director office	103	95				
Ref NW Corner	24	22				
Ref NE Corner	29	26				
Reading W	99	91				
Reading E	70	65				
Index A and B	58	53				
Ref Office	18	16				
Stairwell	14	12				

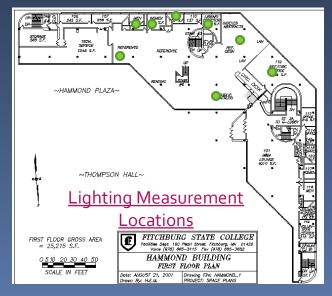
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0.6200

Stair 2

First Floor





Proposed Light Design First Floor

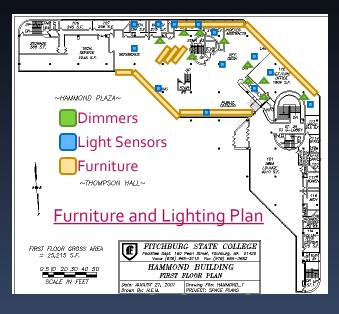
First Floor Library Lighting Audit									
Ligting	Quantity	Room D	imensions	Room	Watts per	Ballast	Total	Density	
Туре		Length	Width	Area	Fixture	Wattage	Wattage	Watts/ft ²	
Α	10			2600	400	0	4000	1.5385	
В	85			2863	32	138	2582		
С	5				17	0	85	0.9749	
D	4				32	4	124		
В	7			443	32	8	216	0.6569	
G	5				15	0	75	0.0505	
Е	8			280	64	16	496	1.7714	
В	38			1600	32	68	1148	0.8025	
С	8				17	0	136	0.0025	
В	22			1250	32	36	668	0.6024	
С	5				17	0	85	0.0024	
В	5			137	32	6	154		
С	2				17	0	34	1.3723	
В	2			110	32	4	60		
С	2				17	0	34	0.8545	
В	8			315	32	8	248		
С	5				17	0	85	1.0571	
В	1			32	32	2	30	0.9375	
В	5			184	32	6	154	0.8370	
В	5			215	32	6	154	0.7163	
В	1			245	32	2	30	0.1224	
В	13			360	32	20	396	1.1000	
В	6			300	32	6	186	0.6200	
	Type A B C D B G E B C B C B C B C B C B C B B	Type A 10 B 85 C 5 D 4 B 7 G 5 E 8 B 38 C 8 B 22 C 5 B 5 C 2 B 2 C 2 B 2 C 5 B 1 B 5 B 1 B 5 B 1 B 5	Ligting Quantity Room D Type Length A 10 B 85 C 5 D 4 B 7 G 5 E 8 B 38 C 8 B 22 C 5 B 5 C 2 B 2 C 2 B 8 C 5 B 1 B 5 B 1 B 1 B 13	Ligting Quantity Room Dimensions Type Length Width A 10 Width B 85 C C 5 C D 4 C B 7 C G 5 C E 8 C B 38 C C 8 C B 22 C C 5 C B 2 C C 2 C B 8 C C 5 C B 1 C B 1 C B 1 C B 1 C B 1 C B 1 C B 1 C B 1 C B 1 C	Ligting Type Quantity Room Dimensions Room Area A 10 2600 2863 B 85 2863 2863 C 5 5 5 5 5 5 6 443 6 7 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	Ligting Type Quantity Room Dimensions Room Watts per Fixture A 10 2600 400 B 85 2863 32 C 5 17 32 B 7 443 32 G 5 15 15 E 8 280 64 B 38 1600 32 C 8 177 32 C 8 177 32 C 8 1600 32 C 5 17 32 C 5 17 32 C 5 17 32 C 2 17 32 C 2 17 32 C 2 17 32 C 2 17 32 C 5 17 32 C 5 17 32 C <	Ligting Type Quantity Room Dimensions Room Area Watts per Fixture Ballast Wattage A 10 2600 400 0 B 85 2863 32 138 C 5 117 0 0 D 4 32 4 32 4 B 7 443 32 8 6 15 0 6 15 0 6 17 0 17 0 17 0 17 0 17 0 17 0 17 0 17 0 17 0 17 </td <td>Ligting Type Quantity Room Dimensions Room Area Watts per Fixture Ballast Wattage Total Wattage A 10 2600 400 0 4000 B 85 2863 32 138 2582 C 5 17 0 85 D 4 32 4 124 B 7 443 32 8 216 G 5 280 64 16 496 B 38 1600 32 68 1148 C 8 1600 32 36 668 B 22 1250 32 36 668 C 5 17 0 85 B 5 137 32 36 668 C 5 17 0 34 B 5 137 32 4 60 C 2 110 32<!--</td--></td>	Ligting Type Quantity Room Dimensions Room Area Watts per Fixture Ballast Wattage Total Wattage A 10 2600 400 0 4000 B 85 2863 32 138 2582 C 5 17 0 85 D 4 32 4 124 B 7 443 32 8 216 G 5 280 64 16 496 B 38 1600 32 68 1148 C 8 1600 32 36 668 B 22 1250 32 36 668 C 5 17 0 85 B 5 137 32 36 668 C 5 17 0 34 B 5 137 32 4 60 C 2 110 32 </td	

		First Floor Libr	(5) Bad (4)So So (3)Ok (1)Good (0)N/A					
	Glare	Dim Lighting	Bright	Location light switches	Readability	Day lighting	Change or Ok	
Stacks	1	3.5	1	0	3	1	Yes	
Stacks	Yes	N0	Yes		No	Yes		
Offices		2	4		2	1	Yes	
Offices		Yes	No		Yes	Yes		
Open Area	4.5	1.5	1.5	5	3.5	2.5	No	
OpenArea	No	Yes	Yes	No	No	Yes	INO	









Energy Advantage Long Life 25W T8 System vs F32T8 System							
	3 LAMP	SYSTEM	4 LAMP SYSTEM				
	Standard F32T8 .87 BF*	Energy Advantage Long Life 25WT8 .87 BF*	Standard F32T8 .87 BF*	Energy Advantage Long Life 25WT8 .87 BF*			
System Wattage	88	67	112	84			
Maintained Lumens	2800 x .87 BF* x .95 LM x 3 = 6943	2400 x .87 BF* x .95 LM x 3 = 595 I	2800 x .87 BF* x .95 LM x 4 = 9257	2400 x .87 BF* x .95 LM x 4 = 7934			
	BF* x .95 LM	BF* x .95 LM x 3 = 595 I	BF* x .95 LM x 4 = 9257	BF* x .95 LM			

Dollars Saved Over the Life of Energy Advantage Long Life 25W T8 Lamps vs Standard F32T8 Lamps								
Energy Savings Calculator								
7 Watts per Lamp Saved	Annual Operating Hrs. (12 hour cycle)	Annual Operating Hrs. (24 hour cycle)	SAVINGS OVER LAMP LIFE					
kWh Rate	4380*	8760**	30,000 Hours					
\$0.06	\$1.84	\$3.68	\$12.26					
\$0.08	\$2.45	\$4.90	\$16.80					
\$0.10	\$3.07	\$6.13	\$21.00					
\$0.12	\$3.68	\$7.36	\$25.20					
\$0.20	\$6.13	\$12.60	\$42.00					
*4380 based on operating the lamps 12 hours per day/7 days per week. **8760 based on operating the lamps 24 hours per day/7 days per week.								