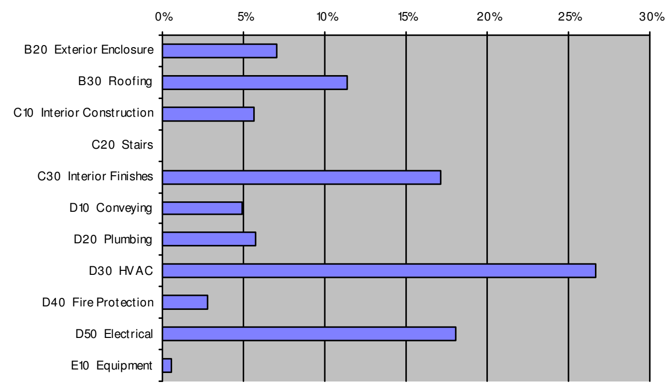
Office Building, 2 Story

Gross Square Feet:	83,000
Height in Ft:	24
Exterior:	Clay Brick
Floor coverings:	Terrazzo, Vinyl Tile, Carpet
HVAC:	Chilled Water, Gas Boiler, Multizone Air
Capacity:	N/A
Occupancy:	740
Replacement Cost:	$16,255,022

50-Year M&R Cost Summary

Task Type	50 Year Total Cost	Annual Cost per GSFT	Annual Cost as % of Replacement
PM & Minor Repair	$2,644,728	$0.64	0.33%
Unscheduled Maintenance	$1,995,557	$0.48	0.25%
Renewal & Replacement	$8,291,022	$2.00	1.02%
Total	**$12,931,307**	**$3.12**	**1.59%**

Distribution of M&R Costs



Components (Continued on Page 156)

Uniformat / Component	Quantity	Units
B20 Exterior Enclosure		
Clay Brick, Exterior, 1st Floor	8340	Sq Ft
Clay Brick, Exterior, 2nd Floor	8340	Sq Ft
Aluminum Operable Window, 12 sf, 1st Floor	35	Each
Aluminum Operable Window, 12 sf, 2nd Floor	35	Each
Aluminum Operable Window, 24 sf, 1st Floor	35	Each
Aluminum Operable Window, 24 sf, 2nd Floor	35	Each
Steel, Painted, Exterior Door	11	Each
Steel w/ Safety Glass, Painted, Exterior Door	6	Each
B30 Roofing		
Single-Ply Modified Bituminous/Thermoplastic Roof	41500	Sq Ft
C10 Interior Construction		
Toilet Partitions, Painted Metal, Overhead Braced	36	Each
Steel, Painted, Interior Door	8	Each
Wood, Solid Core, Painted, Interior Door	184	Each
C20 Stairs		
Concrete, Interior Stairs	600	Sq Ft
Metal, Painted, Interior Railing	160	Ln Ft
C30 Interior Finishes		
Concrete Block, Painted, Interior Wall Finish	7470	Sq Ft
Fabric, Interior Wall Finish	13280	Sq Ft
Sheetrock, Unstippled, Interior Wall Finish	72710	Sq Ft
Carpet, Nylon 20 oz., Low Traffic	62250	Sq Ft
Concrete, Painted Flooring	7470	Sq Ft
Terrazzo Flooring	11205	Sq Ft
Vinyl Tile Flooring	2075	Sq Ft
Acoustical Tile, Dropped Ceiling	75530	Sq Ft
Sheetrock, Unstippled Ceiling	7470	Sq Ft
D10 Conveying		
Elevator, Hydraulic, 2,500 lbs, 3-5 Floor, 200 fpm	1	Each
D20 Plumbing		
Drinking Fountain, Refrigerated	8	Each
Lavatory, Vitreous China	40	Each
Service Sink, Iron, Enamel	2	Each
Tankless Water Closet	36	Each
Urinal, Vitreous China	12	Each
Circulator Pump, 1 HP, Cold Water	1	Each
Circulator Pump, 1 HP, Hot Water	1	Each
Pipe & Fittings, 3/4" Copper, Cold Water	3.1	K Ln Ft
Pipe & Fittings, 3/4" Copper, Hot Water	1.3	K Ln Ft
Pipe & Fittings, 2" Copper, Cold Water	3.2	K Ln Ft
Pipe Insulation, Fiberglass, Cold Water	5.7	K Ln Ft
Pipe Insulation, Fiberglass, Hot Water	1.3	K Ln Ft
Water Heater, Gas/Oil, 175 Gph	1	Each
Backflow Preventer, 4"	2	Each
Pipe & Fittings, 6" Cast Iron	2	K Ln Ft
Pipe & Fittings, 10" Cast Iron	0.5	K Ln Ft
Pipe & Fittings, 4" PVC	0.6	K Ln Ft
Roof Drain, 4-6"	12	Each
D30 HVAC		
Pipe & Fittings, 4" Steel, Gas	1.8	K Ln Ft
Chemical Feed System	1	Each
Circulation Pump, 10 HP, Hot Water	2	Each
Expansion Tank, 100 Gal.	2	Each
Gas Boiler, 2,500 Mbh	1	Each
Chiller, Centrifugal Hermetic, Bundled w/ Condenser, 250 Ton	1	Each
Circulation Pump, 100 HP, Chiller & Condenser Water	2	Each
Cooling Tower, 250 Ton	1	Each
Air Handler, Multizone, 25,000 Cfm	4	Each
Duct Insulation, Fiberglass Blanket	13963	Sq Ft
Ductwork	20840	Lbs
Exhaust Fan, Ceiling, 200-500 Cfm	12	Each
HVAC Control Panel	2	Each
D40 Fire Protection		
Fire Alarm Control Panel	1	Each
Fire Sprinkler Head	415	Each
Fire Sprinkler System	1	Each
Fire Extinguisher	40	Each
D50 Electrical		
Distribution Switch, Fused, <600 V	16	Each
Main Switchgear, <1,200 Amp.	1	Each
Motor Starter, 5-20 HP, <600 V	6	Each
Motor Starter, 21-50 HP, <600 V	10	Each
Motor Starter, 51-75 HP, <600 V	1	Each
Secondary Transformer, Dry, 150 kVA	6	Each
Exit Lighting Fixture, w/ Battery	20	Each

Thirty Most Costly M&R Tasks

M&R Task	Task Cost*	Pct.**
Replace Carpet, Nylon 20 oz., Low Traffic	13.58	10.3%
Refinish Sheetrock, Unstippled, Interior Wall Finish	8.55	6.5%
Replace Membrane, Single-Ply Modified Bituminous/Thermoplastic Roof	7.98	6.1%
Replace Air Handler, Multizone, 25,000 Cfm	7.61	5.8%
Replace Chiller, Centrifugal Hermetic, Bnd'd w/ Condenser, 250 Ton	5.47	4.1%
Replace Ballast & Lamps, Fluorescent Lighting Fixture, 160 w	5.41	4.1%
Replace Fluorescent Lighting Fixture, 160 w	4.94	3.7%
Repair Single-Ply Modified Bituminous/Thermoplastic Roof	4.36	3.3%
Maintain Elevator, Hydraulic, 2,500 lbs, 3-5 Floor, 200 fpm	4.08	3.1%
Renovate Elevator, Hydraulic, 2,500 lbs, 3-5 Floor, 200 fpm	2.74	2.1%
Maintain Single-Ply Modified Bituminous/Thermoplastic Roof	2.72	2.1%
Replace Wood, Solid Core, Painted, Interior Door	2.67	2.0%
Maintain Air Handler, Multizone, 25,000 Cfm	2.65	2.0%
Replace Circulation Pump, 100 HP, Chiller & Condenser Water	2.64	2.0%
Replace Wood, Solid Core, Painted, Interior Door Locks	2.62	2.0%
Repair Chiller, Centrifugal Hermetic, Bnd'd w/ Condenser, 250 Ton	2.49	1.9%
Replace Batteries & Check Operation, Smoke Detector	2.45	1.9%
Maintain Chiller, Centrifugal Hermetic, Bnd'd w/ Condenser, 250 Ton	2.32	1.8%
Maintain Chemical Feed System	2.24	1.7%
Inspect & Test Gas Boiler, 2,500 Mbh	2.14	1.6%
Clean & Reseal Clay Brick, Exterior, 2nd Floor	2.08	1.6%
Replace Cooling Tower, 250 Ton	1.45	1.1%
Clean & Reseal Clay Brick, Exterior, 1st Floor	1.38	1.0%
Refinish Sheetrock, Unstippled Ceiling	1.19	0.9%
Replace Receptacle, 120 V, 15 Amp.	1.19	0.9%
Repair Wiring Device, Switch	1.08	0.8%
Check Operation, Heat Detector	.96	0.7%
Maintain Cooling Tower, 250 Ton	.95	0.7%
Replace Smoke Detector	.94	0.7%
Refinish Concrete Block, Painted, Interior Wall Finish	.91	0.7%

**Task cost ($2009) per GSFT over 50 years.*

***Percent of total M&R costs.*

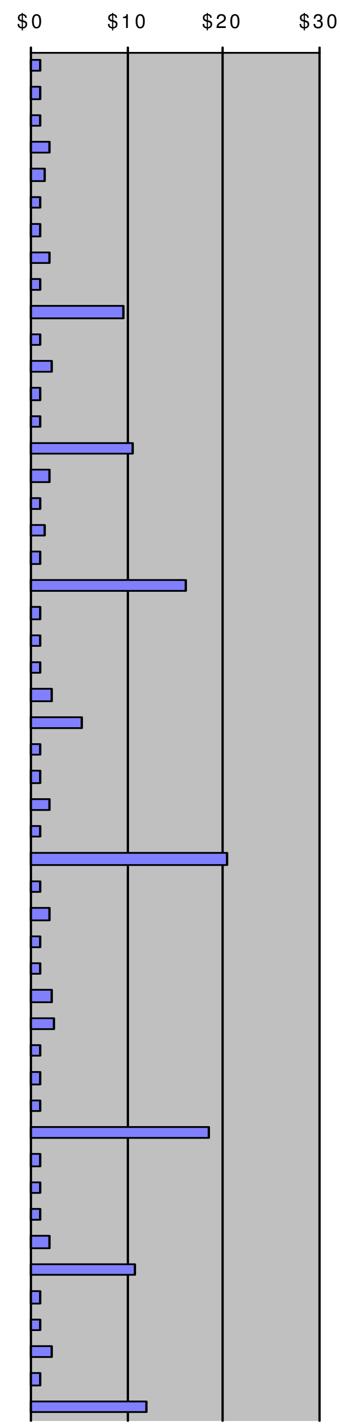
Note: For alternative locations use the Local Indexes shown in Chapter 3.

Cost per GSFT by System

Asset Age	Exterior Closure	Roofing	Interior Constrution	Stairways	Interior Finishes	Conveying Systems	Plumbing	HVAC Systems	Fire Protection	Electrical	Equipment	Site Improvements	Total per GSFT
1		.10				.10	.06	.38	.04	.18	.01		**.87**
2		.10				.10	.13	.38	.04	.18	.01		**.94**
3		.10				.10	.06	.38	.04	.25	.01		**.94**
4		.10	.06	.00	.89	.10	.13	.38	.04	.18	.01		**1.89**
5	.02	.17	.22		.09	.10	.09	.40	.06	.26	.01		**1.42**
6		.10				.10	.13	.38	.04	.25	.01		**1.01**
7		.10				.10	.10	.43	.04	.18	.01		**.96**
8		.10	.06	.00	.89	.10	.13	.38	.04	.18	.01		**1.89**
9		.10			.05	.10	.06	.38	.04	.25	.01		**.99**
10	1.75	1.62	.90		.16	.10	.42	1.53	.34	2.63	.08		**9.55**
11		.10				.10	.06	.38	.04	.18	.01		**.87**
12		.10	.06	.00	.89	.10	.21	.39	.18	.25	.01		**2.19**
13		.10				.10	.06	.38	.04	.18	.01		**.87**
14		.10				.10	.16	.44	.04	.18	.01		**1.04**
15	.10	.17	.22	.00	4.59	.10	.08	4.38	.08	.87	.01		**10.60**
16		.10	.06	.00	.89	.10	.13	.38	.04	.18	.01		**1.89**
17		.10				.10	.06	.38	.06	.18	.01		**.90**
18		.10			.11	.10	.13	.38	.04	.47	.01		**1.34**
19		.10				.10	.06	.38	.04	.18	.01		**.87**
20	1.75	3.99	1.29	.02	1.10	.10	.54	3.14	.32	3.69	.08		**16.04**
21		.10				.10	.10	.43	.04	.25	.01		**1.03**
22		.10				.10	.13	.38	.06	.18	.01		**.97**
23		.10				.10	.06	.38	.04	.18	.01		**.87**
24		.10	.06	.00	.89	.10	.21	.39	.18	.25	.01		**2.19**
25	.96	.17	.22		.39	1.37	.74	.70	.04	.79	.01		**5.38**
26		.10				.10	.13	.38	.04	.18	.01		**.94**
27		.10			.05	.10	.06	.38	.04	.25	.01		**.99**
28		.10	.06	.00	.89	.10	.16	.44	.04	.18	.01		**1.98**
29		.10				.10	.06	.38	.06	.18	.01		**.90**
30	1.83	1.62	.90	.00	4.87	.10	.43	6.27	.36	3.94	.08		**20.41**
31		.10				.10	.06	.38	.04	.18	.01		**.87**
32		.10	.06	.00	.89	.10	.13	.38	.04	.18	.01		**1.89**
33		.10				.10	.06	.38	.04	.25	.01		**.94**
34		.10				.10	.13	.38	.06	.18	.01		**.97**
35	.02	.17	.22		.09	.10	.74	.40	.04	.26	.01		**2.05**
36		.10	.06	.00	1.00	.10	.15	.39	.18	.47	.01		**2.46**
37		.10				.10	.11	.43	.04	.18	.01		**.98**
38		.10				.10	.07	.38	.04	.18	.01		**.88**
39		.10				.10	.11	.38	.04	.25	.01		**1.00**
40	1.75	3.99	3.10	.02	1.10	.10	.39	3.44	.32	4.23	.08		**18.53**
41		.10				.10	.12	.38	.06	.18	.01		**.95**
42		.10				.10	.11	.38	.04	.25	.01		**.99**
43		.10				.10	.12	.38	.04	.18	.01		**.93**
44		.10	.06	.00	.89	.10	.07	.44	.04	.18	.01		**1.89**
45	.10	.17	.22	.00	4.64	.10	.28	4.38	.08	.87	.01		**10.86**
46		.10				.10	.08	.38	.06	.18	.01		**.91**
47		.10				.10	.11	.38	.04	.18	.01		**.93**
48		.10	.06	.00	.89	.10	.15	.39	.18	.25	.01		**2.13**
49		.10				.10	.15	.38	.04	.18	.01		**.97**
50	2.69	1.62	.90	.05	.45	1.37	.90	1.31	.43	2.10	.08		**11.92**
Total	**10.98**	**17.67**	**8.81**	**.12**	**26.68**	**7.71**	**8.90**	**41.57**	**4.35**	**28.16**	**.84**		**155.80**

A value of ".00" means a cost of more than $.000 but less than $.005 per GSFT.

50-Year Total M&R Cost Profile per GSFT



Note: For alternative locations use the Local Indexes shown in Chapter 3.