

## EAST BERRY LIBRARY

The East Berry Branch of the Fort Worth Library located in south Fort Worth. The building occupies a prime location in a retail district near the intersection of East Berry and Miller Avenue, 6.26 miles from the Central Library.

**Official Name:** The East Berry Library

**Building Address:** 4300 East Berry Street

**Library Facility Code:** EBY

### Site Description

The building is situated on a landscaped lot of 1.05 acres, facing East Berry Street, bisected by a utility easement. The topography of the site slopes downward, from the public entrance toward the east and southwest. The primary maintenance responsibility for the site falls under the supervision of the City of Fort Worth Parks and Community Services Department. Routine maintenance includes cutting of the grass and landscaping around the building and in the parking lot. Drawing EBY-1 illustrates the site of the East Berry Library (11" x 17" overleaf).

### Architectural Description

Construction of the original building was completed in 1967 and renovated in 2005. The facility appears to be well built and in good condition for its age. Drawing EBY-2 depicts the Ground Floor of the East Berry Library (11" x 17" overleaf) and the square footage of each room of the Ground Floor, as tabulated in Table A5.5.1.

**Square Footage:** There are currently 7,527 building gross square feet (bgsf), and 6,587 net assignable square feet (nasf) within the facility. The library currently occupies the entire building. Table A5.5.1 contains a room-by-room square footage tabulation for the facility.

*Evaluations for both public & staff spaces of the facility*

**Table A5.5.1**

Existing Square Footage Tabulation, Room-by-Room, The East Berry Library

### Summary

	<i>floor</i>	<i>net assignable square footage</i>	<i>building gross square footage</i>	<i>efficiency</i>
100	Ground Floor	6,588.69	7,526.67	87.54%
<b>TOTAL</b>		<b>6,588.69</b>	<b>7,526.67</b>	<b>87.54%</b>

### Ground Floor

<i>room no.</i>	<i>room name</i>	<i>net assignable square footage</i>	<i>building gross square footage</i>
101	Reading Room		5,168.13
102	Lobby		258.32
103	Circulation Desk		211.38
104	Office		120.00
105	Staff Break Room		164.37
106	Mechanical Room		281.11
107	Toilet		30.00
108	Staff Work Room	666.49	
109	Women's Toilet		104.54
110	Men's Toilet		86.14
assigned rooms and spaces		6,588.69	
unassigned walls, pipe chases, etc.			937.98
<b>TOTAL</b>			<b>7,526.67</b>
<b>EFFICIENCY</b>			<b>87.54%</b>

The T/PW facilities database attributes 9,250 bgsf to the East Berry Library, which more closely approximates the square footage under roof, including the roof overhangs at the entrance, around the perimeter, and east-facing colonnade, as well as all of the enclosed space.

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### Trade Area Population

The population within the 7-minute trade area is 47,880, as determined by the Customer Analytics Consultants.

### Driving Distance to Other Libraries

Meadowbrook	3.99 miles	10 minutes
Central Library	6.26 miles	13 minutes

### Demographics

Households with children	6,726
Persons age 17 and under	14,907
Persons age 18 to 64	27,853
Persons age 65+	5,120
Percent Black/African American	58.6%
Percent Hispanic	35.9%

### Output Measures

The Library Consultants calculated a number of measurements of operating efficiency and their respective rankings among the 15 current FWL libraries. Table A5.5.2 summarizes our findings for the East Berry Library.

**Table A5.5.2**

Output Measures, East Berry Library

<i>output</i>	<i>measure</i>	<i>ranking</i>
Contacts per capita	5.15	15 of 15
Cost efficiency per contact	\$1.50	6 of 15
Cost efficiency per SF to operate	\$54.41	5 of 15

### Collections

The current total collection size is 33,924. At 0.71 items per capita, the collection is much smaller than the minimum standard of 2.00 items per capita.

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The responsiveness of collections to younger core customers reveals that the population under 17 years of age is 31.1 percent of the total, but the combined Children's/Teen collections are 40.8 percent of total. The library materials and services more likely to be used at East Berry are Spanish Materials, Juvenile DVDs, PC Logins, and DVDs.

The space required to house the collections in an ADA/User-Friendly standard is 3,912 square feet, or 42.3% of the total building size.

### Computers & Seating

Based on the number of computers provided for the public, the East Berry Library, with 13, is below "Basic" when compared to Texas State Library standards. To achieve the "Basic" level by the year 2020, East Berry will need 24 public computers.

The current public seating ratio, including computers is one seat per 603 (1:603) collection items. This compares very favorably to the neighborhood library standard of 1:1,500 to 1:1,800 collection items.

### Site & Building Capacity

The East Berry Library currently provides 40 parking spaces on site. At over 7,500 gross square feet, 38 parking spaces would be needed at the East Berry Library, in order to meet the minimum standard of one space per 200 bgsf of building, as currently sized.

Table A5.5.3 compares the current capacity of the East Berry Library to the needed capacity based on the minimum space standards presented in Appendix Three.

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**Table A5.5.3**

Site & Building Capacity, East Berry Library

<i>unit of capacity</i>	<i>current 2010</i>	<i>2010 need to standards</i>	<i>current vs. standards</i>
Net assignable square feet	6,589	8,176	80.6%
Building gross square feet	7,527	9,619	78.2%
Site area, in acres	1.05	0.88	119.8%
Parking spaces	40	48	83.2%

Staff workspace is 11.94% of total net assignable square feet (nasf) of the building – a shortfall when compared to the minimum standard of 15% for buildings of up to 15,000 gross square feet. In terms of square footage, the shortfall equates to 202 nasf less than the minimum need of 988 nasf.

### Growth Potential

**Adaptability:** The building has a crawl space beneath the floor and is composed of open spaces, with structural spans ranging from over 50 feet east-to-west to 18 feet north-to-south. Changes to the configuration of the spaces appear to be very feasible.

**Expandability:** Additions to the south and the east appear most feasible, using the land of the existing parking lots for future horizontal expansion. However, the north-south utility easement that bisects the property might be a limiting factor to the size of a westward addition. It is not conceivable that vertical expansion could be achieved, given a preliminary analysis of the roof structure.

### Technology Assessment

Historic computer usage at the East Berry Library is presented in Table A5.5.4 for fiscal years 2007 through 2009, with statistics for PC logins, PC logins to library visits, and wi-fi connections.

## Existing Facility Assessment

**Table A5.5.4**

Historic Computer Usage, East Berry Library

<i>service item</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>
PC Logins	22,632	23,046	22,930
PC Logins to Visits Ratio	20.3%	17.9%	22.1%
Wi-Fi Connections	n/a	144	1,152

**Computer Network:** The building predates technology but was renovated approximately five years ago. Floor boxes provide access to power and network connectivity. Wire molding runs on the walls delivers the cables in the staff spaces. Customers use the electrical outlets there for wi-fi although locations are limited. Wi-fi has been available since May of 2008.

**Public Computers:** A summary of the distribution of public computers is provided in Table A5.5.5 below. Computer reservation stations and print release stations are not included in the Adult Services quantity.

**Table A5.5.5**

Public Computer Distribution, East Berry Library

<i>computer location</i>	<i>quantity</i>
Public Access Catalog (PAC)	1
Adult Services	11
Teen Services	1
Children's Services	0
TOTAL	13

Of the 12 Internet computers provided, one is an express, 15-minute Teen Services computer. No computers are provided in the Children's area, so there are no early literacy stations. Waiting time after school and on the weekends can be one to two hours. One combination reservation and print release station is provided, which is sufficient. The older computers

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create problems, including difficulties in using applications because they are not the current version and in downloading.

**Public Technology:** A flat-screen television is used to show the city council meetings. On Saturdays, the TV is used for gaming for Teen Services. At other times, it is turned off. Wi-fi printing is not supported but customers have requested this. A materials security system is installed.

**Computer Training:** Training is not offered.

**Self-Service:** No self-check is provided.

**Study Rooms & Meeting Spaces:** No study rooms exist., No meeting space exists.

**Technology for Staff:** A total of seven staff computers are provided. Two computers are provided at the circulation desk. Two computers are provided at the reference desk. Staff reported that the inside book return and outside book return are used about the same amount. Materials are checked in at the circulation desk. An additional computer is needed for the workroom, primarily for use by the librarians, who must otherwise work at the library supervisor's computer.

### Site Improvements

**G2010 Roadways:** A loop drive connects the parking lot to Hatcher Street. *composite rating: 4.*

**G2020 Parking Lots:** A striped asphalt parking lot for 40 cars, including two spaces reserved for the handicapped, is situated to the west of the building. Storm water drainage from paved parking areas is effective during moderate rains, however, water does puddle in certain locations. *composite rating: 4.*

**G2030 Pedestrian Paving:** Handicapped access to the public entrance appears to be compliant, however, neither of the other

## Existing Facility Assessment

two egress points from the building provide an accessible route. *composite rating: 3.*

**G2040 Site Development:** Building- and pole-mounted lighting on the site uses metal halide lamps and appears adequate. One flag pole and one rack for 10 bikes are provided at the public entrance. A back-lit sign sits directly in front of the main entrance. *composite rating: 4.*

**G2050 Landscaping:** Large, mature trees are present around the perimeter of the site. Shrubs and flower beds are planted in the built-in planters on the east and north facades of the building. *composite rating: 4.*

**G3000 Site Utilities:** Underground utilities that appear to be available at the site include water, sanitary sewer, gas, power, and telephone. No overhead utilities appear to be connected to the building. *composite rating: 4.*

### Substructure

**A1010 Foundations:** As indicated on the original construction drawings, the building utilizes a foundation comprised of steel-reinforced concrete grade beams supported by steel-reinforced concrete pier footings under the entire building approximately 13 to 20 feet on center. No evidence of settlement was observed. *rating: 4.*

**B1010 Floor Slabs:** Interior concrete floors are five and one-half-inch thick, cast-in-place with concrete joists, reinforced with #4 to #7 re-bars, per the original construction drawings. No evidence of settlement was observed. *rating: 4.*

### Building Shell/Exterior Envelope

**B1020 Superstructure:** The building's superstructure is comprised of load-bearing steel tube columns, supporting steel beams and open-web steel joists, which support the roof deck.

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The structure provides a clear span in excess of 50 feet across the entire public area. Twelve-inch thick masonry walls provide lateral bracing around the perimeter and internally. *rating: 4.*

**B2010 Exterior Walls:** The building uses a brick veneer, backed by concrete masonry units in a triple-width configuration in most locations. No insulation appears to have been provided within the exterior, as indicated on the original construction drawings, but is difficult to verify from visual inspection. *rating: 4*

**B2020 Exterior Windows:** A glass storefront spans the east façade of the building. Window units are fixed glass, with single-pane glass in aluminum frames. Two minor cracks are evident. *rating: 0.*

**B2030 Exterior Doors:** The aluminum storefront entrance on the north face of the building is also fixed single-pane glass in aluminum frames. The glass does not appear to be tempered. All other exterior doors in the building are hollow metal in hollow metal frames. Panic hardware is provided on the other two exit doors. *rating: 1.*

**B3010 Roofing:** The roof of the building is primarily flat, utilizing a two-ply modified bituminous/thermoplastic membrane roofing system, according to the T/PW database. The substrate material under the roofing membrane is gypsum decking, as indicated on the original construction drawings. The roof includes a metal fascia around the entire perimeter. Roof leaks that have developed over the years appear to have been remedied with the replacement of the roof membrane in 1997. *rating: 4.*

### Interior Items

These items were surveyed and rated on a room-by-room basis, and include composite ratings for all rooms in the entire building.

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**C1020 Interior Doors & Hardware:** The interior doors are solid core wood in hollow metal frames. Door hardware consists of bronze doorknobs, which are not ADA compliant, except for lever handles at Public Toilets 109 and 110. *composite rating: 3.*

**C3010 Wall Finishes:** Predominate wall finishes throughout are light colored paint on face brick walls. Selected areas have paint on plaster partitions or exposed concrete block. Toilet Rooms 109 and 110 have ceramic wall tiles. The light colors offers good light reflectance and do not appear to be a cleaning or maintenance problem. *composite rating: 4.*

**C3020 Floor Finishes:** Floor covering throughout the building is predominantly carpet tile, with 12-inch by 12-inch tile used in Lobby 102 and Toilet Rooms 109 and 110. Generally, floor finishes are in very good condition. *composite rating: 4.*

**C3030 Ceiling Finishes:** The dominant ceiling finish throughout the building is two-foot by two-foot lay-in suspended acoustical ceiling tile. Ceiling finishes appear to be in very good condition. *composite rating: 4.*

### Vertical Movement & Egress

**C2010 Stairs:** No fire stairs are required for this one-story building. Exterior concrete stairs at the staff entrance and second public area exit appear to be adequate. *rating: 4.*

**D1010 Elevators:** No elevator is required for this one-story building. *rating: N/A.*

**Z1020 Handicapped Accessibility:** The building provides three means of egress at grade level, of which only the public entrance is an accessible route. Toilet Rooms have been modified from their original configuration, but do not meet all current TAS standards. *rating: 1.*

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### Equipment & Furnishings

**E2010 Millwork & Casework:** The cabinetry in each space appears to be original to the building, but is in working condition. The Circulation Desk appears to have been rebuilt and functions adequately. *composite rating: 4.*

**E2020 Furnishings, Fixtures, & Equipment:** In general, the furnishings in public spaces were installed with the renovation of 2007, and are in very good condition. *composite rating: 4.*

### Mechanical System Description

A Mechanical Room houses a two single zone vertical air handling units (AHU's) and a gas-fired hydronic boiler. One of the AHU serves the Circulation area and the other AHU serves Staff Work Room 108, Lobby 102, and Restrooms 109 and 110. The refrigeration cooling system consists of a direct expansion (DX) coil in each air handling unit and a matched air cooled condensing unit located outside.

The heating system consists of a hydronic gas-fired boiler and an end-suction circulation pump. Each AHU has a hydronic heating coil with a 3-way valve. Associated with the hydronic system is an expansion tank with make-up water connection and chemical pot feeder.

### Plumbing System

**D2020 Domestic Water Distribution:** Copper piping is utilized throughout the building. Water pressure appears adequate with a 2 ½-inch service to the building. *rating: 4.*

**D2020 Domestic Water Heater:** A 40-gallon gas-fired domestic hot water heater rated 35,000 Btu/hr input is located in the Mechanical Room. The system is provided with an in-line circulation pump. It was installed in 2004. Water heater system

## Existing Facility Assessment

does not include a thermostatic mixing valve to limit hot water temperatures to public lavatories. *rating: 3*

**D2030 Sanitary Collection:** Piping is a combination of PVC and cast iron. *rating: 4.*

**D2040 Storm Water Collection:** Twelve internal drains provide roof drainage, according to the original construction drawings. Piping for roof drainage appears to be adequate, though overflow capacity at the roof perimeter seems to be lacking. *rating: 3.*

### Fire Protection System

**D4010 Fire Protection Sprinklers:** No fire protection system exists in the facility. *rating: 0.*

### Air Conditioning System

**D3030 Compressor/Condenser:** There are two Carrier air cooled condensers that utilize refrigerant R-22. One condenser is a nominal 20-ton unit with a single circuit semi-hermetic compressor with two condenser fans and has an Energy Efficiency Ratio (EER) of 10.4. This unit was installed in 1993. The other condenser is a nominal 8.5-ton single circuit unit with a reciprocating compressor and one condenser fan and has an EER of 7.6. This unit was installed in 1992. This condenser has a damaged condenser coil that is bent. Both units are approaching their life expectancies of 20 years. *rating: 0.*

**D3040 Air Handling Equipment:** The larger AHU is a single-zone Carrier unit installed in 1993. It has a DX coiling coil and a hydronic heating coil. It appears to be in good condition but is approaching its life expectancy of 20 years. The smaller AHU is a single-zone Carrier unit installed in 1993. It has a DX coiling coil and a hydronic heating coil. It appears to be in good condition, but approaching its 20-year life expectancy. *rating: 0.*

**D3040 HVAC Distribution Systems:** All heating, ventilating, and air conditioning (HVAC) systems are ducted supply and ducted return air.

Circulation Desk 103 is served by ducted supply and return air ductwork routed under the floor in a crawl space to floor grilles. Supply air floor grilles are located along the entire exterior east wall that has full height window from floor to ceiling. Floor-mounted return air grilles are located in the interior of the facility. Staff indicated there are condensation issues along the entire length of the east exterior wall of glass. A year ago, staff heard water in the crawl space ductwork. The condensation falls down the window and absorbs into the carpet. The Circulation Desk area smells musty all the time and is damp on high humidity days.

Staff indicated that Staff Work Room 108 is too warm a majority of the time. This might be a balancing issue since there are numerous computers and people working in the area. *rating: 2*

**D3040 Refrigerant Piping:** Piping is copper tube with flexible elastomeric insulation. *rating: 3.*

### Heating System

**D3040 Boiler:** The Laars hydronic heating boiler (715,000 Btu/hr input) is an atmospheric-type boiler. It was installed in 1999 and appears to be in good condition. The current boiler installation has a building code variance since it does not provide the required clearances around the unit to adjoining walls. Combustion air into Mechanical Room 106 is provided through louvers in the door. Louver insect/bird screens are dirty and prohibit adequate free area for combustion air; and in turn may not allow adequate air for the gas-fired equipment. *rating: 3*

**D3040 Pumps:** The end-suction heating circulation pump appears to be original to the building (1967) and is considerably past its 20 years life expectancy. *rating: 0.*

**D3040 Distribution Piping:** Piping is primarily black steel and copper tube. Piping insulation is not in good shape in many locations. *rating: 3.*

### Automatic Temperature Controls

**D3060 Automated HVAC Controls:** No building automation system is provided, and building temperature is controlled by local thermostats only. *rating: 0*

### Interior Mechanical Items

These items were surveyed and rated on a room-by-room basis, and include composite ratings for all rooms in the entire building.

**D2010 Plumbing Fixtures:** Men's Toilet 110 has one wall-mounted handicap accessible lavatory, one urinal, and one wall-mounted flush valve handicap accessible water closet. All fixtures are vitreous china and in good condition. Women's Toilet 109 has one wall-mounted handicap accessible lavatory and one wall-mounted flush valve handicap accessible water closet. All fixtures are vitreous china and in good condition. The staff Toilet 107 has one wall-mounted lavatory and one wall-mounted flush valve water closet. All fixtures are vitreous china. The lavatory is cracked.

The Staff indicated that there are overflow water conditions due to people throwing items into lavatories and water closets. Water has flowed out the doors on several occasions. This is prevalent in the Men's Toilet 110. There are floor drains in the Toilet rooms, but with only a slight slope right around the drain. The entire floor does not slope to the floor drain.

One bi-level electric water cooler is provided in the Entry area and is in good condition. Staff Break Room 105 has one single compartment bar-type stainless steel sink, in good condition. There is one wall-mounted slop sink in Mechanical Room 10 which is not in good condition. *composite rating: 2.*

**D3040 Ventilation:** Throughout most of the facility, air movement was poor and the facility smelled musty. There are ceiling fans mounted throughout the facility. Both the Women's and Men's Toilets 109 and 110 respectively had lingering odors, which is probably the result of airflow balancing issues or a need for exhaust fan replacement. *composite rating: 0*

**D3040 Diffusers:** Diffusers are predominantly floor-mounted in public spaces and ceiling-mounted in the remaining areas. Some air devices show signs of rust. *composite rating: 3.*

**D3060 Local Automatic Temperature Control:** Non-programmable thermostat control for the facility. There does not appear to be any humidity controls or capabilities to limit high humidity levels. *composite rating: 0.*

### Electrical System Description

The electrical distribution system consists of one 400A, 120/208V, 3-phase, 4-wire distribution panel and one 225A, 120/208V, 3-phase, 4-wire branch circuit panel, both located in Mechanical Room 106. The main distribution panel feeds HVAC equipment and the branch circuit panel. Panels appear to be original to the building. These panels are near their end of life. Lighting is automatically controlled. The facility has no emergency power system.

**D5010 Service Equipment:** The main distribution panel is original equipment. This panel is near their end of life and needs to be replaced. There is no evidence that feeders need to be replaced. *rating: 2.*

**D5010 Power Distribution Panels:** The branch circuit panel is original equipment. There are almost no spaces available for additional branch circuits. Spare circuits are necessary for normal modifications of the electrical system. This panel is near their end of life and needs to be replaced. *rating: 0.*

**D5020 Lighting & Branch Wiring:** There is no evidence that branch circuits, and other conductors need to be replaced. *rating: 4.*

**D5040 Emergency Power:** Building does not have emergency power distribution system. *rating:: 0.*

### Interior Electrical Items

These items were surveyed and rated on a room-by-room basis, and include composite ratings for all rooms in the entire building.

**D5020 Receptacles:** Floor-mounted receptacles are located throughout the reading and stack areas. There are only three wall-mounted receptacles in the entire building. Library personnel has expressed desire to add some outlets to cover areas currently without receptacles. Additional receptacles are needed. *composite rating: 3.*

**D5020 Lighting:** Two-foot by four-foot fluorescent fixtures are the primary source of illumination. Reading areas have lighting levels approximately 55 foot-candles (FC) with 20 FC vertical at the book stacks. Offices have approximately 35 FC. Switching in public areas is automatic through occupancy sensors. *composite rating: 4.*

**D5030 Data Infrastructure:** Data infrastructure is managed from a wall-mounted cabinet in Staff Work Room 108. This cabinet, typical for most libraries, provides adequate data infrastructure in a limited space. Although adequate for the facility, it is recommended that any future renovations include at least one dedicated space for IT infrastructure. *composite rating: 4.*

**D5030 Public Address System:** There is no public address system in this facility. *composite rating: 0.*

**D5030 Security System:** This building has a security system. *composite rating: 4.*

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**D5040 Fire Alarm:** This building has a fire alarm system. There is no evidence of deficiencies. *composite rating: 4.*

**D5040 Emergency/Egress Lighting:** This building does not have emergency lighting system. *composite rating: 0.*

### Additional Systems

The following are systems that are either good practice in library facility design or would be required by current building codes if a renovation or expansion were to be undertaken. They do not presently exist in the building, so it is suggested they be added.

**Handicapped Accessibility:** Provisions are adequate to access the building, and essential facilities within, but some additional requirements are applicable. Door hardware, toilet room configuration, and some furniture placement within the facility create limited accessibility to many areas.

**Exiting:** Provisions are adequate, so no additional requirements are applicable to this facility.

**Install Building Energy Management System:** The consultants recommend installation of a building automation system for energy management.

**Install Fire Protection:** No fire protection system is provided, but should be installed throughout the building.

**Install Smoke Detection:** This code requirement was applicable to this facility when built, but current codes may require additional system components, depending on the extent of renovation.

**Install Fire Alarm:** No fire alarm system is provided, but alarms be installed per current code.

## Existing Facility Assessment

**Install Public Address System:** A sound system for public address should be installed throughout the building if it is expanded.

### Construction Cost Impacts

The building-wide survey includes the identification of issues that may impact the cost of expansion. Examples of these issues include the degree of difficulty of construction on the site, the current state of the local economy, how renovation will impact the operations of a facility, etcetera.

**Location:** The site is near a main thoroughfare, and is in a good location for the delivery of construction materials and labor.

**Site Limitations:** Land is available for future horizontal expansion, or for staging of construction, but the utility easement that bisects the property might limit the size of an addition.

**Construction Difficulty:** No apparent limitations exist to additional construction at the site. Given no evidence of settlement, sub-surface conditions may be stable. However, a geotechnical analysis of the soil should be conducted prior to any expansion of the facility.

**Phasing:** Future horizontal additions can be constructed, but not without impact to the existing operations. It is conceivable that an on-site addition could be completed without requiring the Library to relocate to another building, but such a phasing plan would not be advisable.

**Historic Issues:** The building is not located within a historic district, however, if expansion or new construction is to occur, any new addition should be sensitive to the character of the existing building and adjacent residential neighborhood.

**Asbestos:** No asbestos is known to exist in the building or on the site at this time.

**Costs to Retrofit Existing Building Systems**

Table A5.5.5 provides the unit costs of the various retrofit projects. The unit prices apply to either the overall gross area of the building (bgsf), or net assignable square footage (nasf), as appropriate, to develop the cost for system retrofits.

**Analysis.** The total cost to retrofit the building systems is \$375,067, or \$49.83 per square foot. Most of the systems affected would be made more energy efficient, and/or fully code compliant – improving the life safety of the facility – thereby limiting the potential liability to the City of Fort Worth in the event of a disaster or accident.

**Table A5.5.5**  
Retrofit of Existing Building Systems, East Berry Library

<i>uniformat code</i>	<i>construction element</i>	<i>rating</i>	<i>weight factor</i>	<i>square footage</i>	<i>unit cost</i>	<i>total cost</i>	<i>comments</i>
B1010	Floor slabs	4	0%	7,527 bgsf	\$2.65	\$0	
B1020	Superstructure	4	0%	7,527 bgsf	12.45	0	
B2010	Exterior walls	4	0%	7,527 bgsf	9.55	0	
B2020	Exterior windows	0	110%	7,527 bgsf	8.11	67,148	replace windows with insulated glass
B2030	Exterior doors	1	75%	7,527 bgsf	4.85	27,379	make doors fully code-compliant
B3010	Roofing	4	0%	7,527 bgsf	6.89	0	roof was replaced in 1996
C1020	Interior doors & hardware	3	25%	6,589 nasf	3.15	5,189	replace door knobs with levers
C2010	Stairs/ramps	4	0%	7,527 bgsf	7.55	0	
C3010	Wall finishes	4	0%	6,589 nasf	3.33	0	
C3020	Floor finishes	4	0%	6,589 nasf	3.15	0	
C3030	Ceiling finishes	4	0%	6,589 nasf	3.28	0	
D2010	Plumbing fixtures	2	50%	6,589 nasf	2.50	8,236	replace damaged fixtures & floor drains
D2020	Domestic water distribution	4	0%	7,527 bgsf	1.72	0	
D2020	Domestic water heaters	3	25%	7,527 bgsf	0.25	470	add thermostatic mixing valve
D2030	Sanitary collection	4	0%	7,527 bgsf	1.15	0	
D2040	Storm water collection	3	25%	7,527 bgsf	1.77	3,331	increase overflow capacity
D3020	Boilers	3	25%	7,527 bgsf	4.78	8,995	provide adequate outside air to unit
D3030	Compressors/condensers	0	110%	7,527 bgsf	2.05	16,973	both units have reached life expectancy
D3040	Air handling equipment	0	110%	7,527 bgsf	7.10	58,786	both units have reached life expectancy
D3040	Refrigerant piping	3	25%	7,527 bgsf	1.05	1,976	install additional insulation
D3040	Heating system pumps	0	110%	7,527 bgsf	0.87	7,203	pump needs to be replaced
D3040	Distribution piping	3	25%	7,527 bgsf	1.05	1,976	replace damaged insulation
D3040	HVAC ductwork	2	50%	6,589 nasf	4.25	14,002	balance system, replace rusted ducts
D3040	Ventilation	0	110%	6,589 nasf	2.03	14,713	up-size toilet exhaust fans

Table A5.5.5 (continued)

Retrofit of Existing Building Systems, East Berry Library

<i>uniformat code</i>	<i>construction element</i>	<i>rating</i>	<i>weight factor</i>	<i>square footage</i>	<i>unit cost</i>	<i>total cost</i>	<i>comments</i>	
D3050	HVAC diffusers	3	25%	6,589	nasf	\$1.21	\$1,993	replace rusted grilles
D3060	Building temperature controls	0	110%	6,589	nasf	3.15	22,831	install new system
D3060	Local temperature controls	0	110%	6,589	nasf	0.48	3,479	install programmable thermostats
D4010	Fire protection system	0	110%	7,527	bgsf	3.90	32,291	install new dry-pipe system
D5010	Electrical service equipment	2	50%	7,527	bgsf	1.97	7,414	replace existing panel
D5010	Distribution panels	0	110%	7,527	bgsf	3.43	28,399	replace existing panel
D5010	Branch power distribution	4	0%	7,527	bgsf	2.30	0	
D5020	Lighting fixtures	4	0%	6,589	nasf	3.50	0	
D5020	Emergency lighting	0	110%	6,589	nasf	0.90	6,523	install new system
D5020	Convenience receptacles	3	25%	6,589	nasf	2.90	4,777	install additional receptacles
D5030	Data infrastructure	4	0%	7,527	bgsf	3.77	0	
D5030	Public address system	0	110%	6,589	nasf	1.55	11,234	install new system
D5030	Building security system	4	0%	7,527	bgsf	1.10	0	
D5040	Fire alarm system	4	0%	7,527	bgsf	1.75	0	
D5040	Emergency power	0	110%	7,527	bgsf	1.66	13,744	install new system
E2010	Casework & millwork	4	0%	6,589	nasf	8.22	0	
E2020	Furniture & equipment	4	0%	6,589	nasf	22.50	0	
G2010	Roadways	4	0%	7,527	bgsf	1.12	0	
G2020	Parking Lots	4	0%	7,527	bgsf	0.97	0	
G2030	Pedestrian Paving	3	25%	7,527	bgsf	0.76	1,430	modify landings at exit doors
G2040	Site Development	4	0%	7,527	bgsf	1.42	0	
G2050	Landscaping	4	0%	7,527	bgsf	0.23	0	
G3000	Site Utilities	4	0%	7,527	bgsf	1.44	0	
Z1010	Handicapped access	3	25%	7,527	bgsf	2.43	4,573	address doors, toilets, egress access
TOTAL RETROFIT COST						<b>\$375,067</b>		