RIDGLEA LIBRARY

The Ridglea Library is a branch of the Fort Worth Library located in west Fort Worth. The building occupies a good location near a busy retail district just south of Camp Bowie Boulevard, 6.02 miles from the Central Library.

Official Name: The Ridglea Library

Building Address: 3628 Bernie Anderson Drive

Library Facility Code: RDG

Site Description

The building is situated on a landscaped lot of 1.16 acres, facing Bernie Anderson Drive. The topography of the site slopes gently downward toward the south. 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 parking lot. Drawing RDG-1 illustrates the site of the Ridglea Library (11" x 17" overleaf).

Architectural Description

Construction of the building was completed in 1967. The facility appears to be well built and in good condition for its age. Drawing RDG-2 depicts the Ground Floor of the Ridglea Library, as well as the square footage of each room of the building (also 11" x 17" overleaf) as tabulated in Table A5.9.1.

Square Footage: There are currently 9,585 building gross square feet (bgsf), and 7,322 net assignable square feet (nasf) within the facility. The library currently occupies the entire building. Table A5.9.1 contains a room-by-room square footage tabulation for the facility.

Table A5.9.1
Existing Square Footage Tabulation, Room-by-Room, Ridglea Library

Summary

floor		net assignable square footage	building gross square footage	efficiency
100	Ground Floor	7,321.81	9,584.82	76.39%
TOTAL		**7,321.81**	**9,584.82**	**76.39%**

Ground Floor

room no.	room name	square footage net assignable	building gross
101	Circulation	520.57	
102	Office	144.00	
103	Mechanical Room		320.22
104	Staff Break Room	179.72	
105	Toilet		20.00
106	Coats	19.11	
107	Storage	10.11	
108	Passage	60.48	
109	Staff Work Room	623.88	
110	Vestibule		164.83
111	Women's Toilet		89.69
112	Ante		31.65
113	Janitor		35.39
114	Ante		31.00
115	Men's Toilet		87.99
116	Lobby	537.82	
117	Reading Room	5,226.12	
assigned rooms and spaces		7,321.81	
unassigned walls, pipe chases, etc.			2,263.01
TOTAL			9,584.82
EFFICIENCY			76.39%

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The T/PW facilities database attributes 10,754 bgsf to the Ridglea Library, which is actually the square footage under roof, including the roof overhangs at the entrances and perimeter, as well as all of the enclosed space.

Trade Area Population

The population within the 9-minute trade area of the Ridglea Library is 85,404, as determined by the Customer Analytics Consultants.

Driving Distance/Time to Other Libraries

Wedgwood	6.52 miles	13 minutes
Central Library	6.02 miles	11 minutes

Demographics

Households with children	10,129
Persons age 17 and under	18,711
Persons age 18 to 64	53,572
Persons age 65+	13,121
Percent Black/African-American	14.2%
Percent Hispanic	26.2%

Output Measures

The Library Consultants calculated a number of measurements of operating efficiency and their respective rankings among the 15 current FWL libraries, as summarized in Table A5.9.2.

Table A5.9.2
Output Measures, Ridglea Library

output	measure	ranking
Contacts per capita	7.34	12 of 15
Cost efficiency per contact	$1.39	3 of 15
Cost efficiency per SF to operate	$75.29	8 of 15

Existing Facility Assessment

Collections

The current total collection size is 71,897. At 0.84 items per capita, the collection does not compare favorably to the minimum standard of 2.00 items per capita.

The responsiveness of collections to younger core customers reveals that the population under 17 years of age is 21.9 percent of the total, and the combined Children's/Teen collections are 42.1 percent of total. The library materials and services more likely to be used at Ridglea are Best Sellers, Adult Fiction, Books on CD, and Adult Non-Fiction.

The space required to house the collections in an ADA/User-Friendly standard is 8,953 square feet, or 83.3% of the total building size.

Computers & Seating

Based on the number of computers provided for the public, the Ridglea Library, with 19, is well below "Basic" when compared to Texas State Library standards. To achieve the "Basic" level by the year 2020, Ridglea will need 43 public computers.

The current public seating ratio, including computers, at Ridglea is one seat per 804 (1:804) 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 Ridglea Branch currently provides 36 parking spaces on site. At just under 9,600 gross square feet, 48 parking spaces would be needed at the Ridglea Branch, in order to meet the minimum standard of one space per 200 bgsf of building, as it is currently sized.

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Staff workspace is 10.49 % 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 330 nasf less than the minimum need of 1,098 nasf.

Table A5.9.3 compares the current capacity of the Ridglea Branch to the needed capacity based on the minimum space standards presented in Appendix Three.

Table A5.9.3
Site & Building Capacity, Ridglea Library

unit of capacity	current 2010	2010 need to standards	current vs. standards
Net assignable square feet	7,322	13,840	52.9%
Building gross square feet	9,585	16,282	58.9%
Site area, in acres	1.16	1.50	77.7%
Parking spaces	36	81	44.2%

Growth Potential

Adaptability: The building is composed of one open space for the public, with structural spans of 56 feet from east-to-west and 63 feet from 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 landscaped areas and the drop-off drive for future horizontal expansion, but parking is currently inadequate. 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 Ridglea Library is presented in Table A5.6.4 for fiscal years 2007 through 2009, showing PC logins, PC logins to library visits, and wi-fi connections.

Existing Facility Assessment

Table A5.9.4
Historic Computer Usage, Ridglea Library

service item	2007	2008	2009
PC Logins	22,205	21,960	22,917
PC Logins to Visits Ratio	16.4%	17.0%	15.9%
Wi-Fi Connections	n/a	n/a	1,670

Computer Network: The building was not designed for the heavy use of electrical and network devices required for the library today. There is an insufficient supply of power outlets in both the staff and public areas. There is a heavy use of extension cords. Some floor boxes exist but are covered with carpet. Slits cut into the carpet in box locations allow the network cable to be pulled through for use. Public computers are placed in such a way to surround the carpet cut, gain access to the network, and keep the cut out of the public walkway, but this contributes to an inefficient use of the space. This design should be reviewed to determine if a more efficient design is possible. Wi-Fi was made available in January of 2009.

Public Computers: A summary of the distribution of public computers is provided in Table A5.9.5 below. Computer reservation stations and print release stations are not included in the Adult Services quantity.

Table A5.9.5
Public Computer Distribution, Ridglea Library

computer location	quantity
Public Access Catalog (PAC)	3
Adult Services	16
Teen Services	0
Children's Services	0
TOTAL	19

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The three PACs provided are located near the entrance for easy access by library customers. Of the thirteen Internet computers provided, one is an express computer with a 15-minute time limit. No computers are dedicated to the Children's area. Some monitors do not face the service desk, making it difficult for staff to monitor compliance with use policies. One computer is shared for both reservations and printing, and a waiting line can occur. Tasks need to be separated onto two computers or a second shared computer added. Customers have difficulties in using the computers, particularly in reading flash drives and due to the older versions of the software installed. The hardware and software used for public computers are considered too old to be of good service.

Public Technology: A material security system is installed and covers both entrances. Staff reported too many false alarms. The TV is used to deliver news via cable TV and also for gaming. Staff rotates the TV station daily through a short list of cable channels to offer different interests. Noise is an issue when the TV is used for gaming because of its placement in the public area. A power strip has been added to a table to support Wi-Fi users. Additional tables exist for use by Wi-Fi users who may not require power. Gaming events are scheduled every Saturday during the school year. The TV is used, but the sound is kept turned off due to the placement in the public area. Customers request faxing services.

Computer Training: No training is offered.

Self-Service: One self-check station is provided. Staff can easily see the unit to see if customers need assistance.

Study Rooms & Meeting Spaces: No study rooms exist. Programming must be done in the public areas because no separate meeting space exists.

Technology for Staff: A total of eleven staff computers are provided. There are three staff stations at the circulation desk and two staff stations at the information desk. Five computers are located in the workroom, two for check-in. Because of the shortage of staff computers, staff members share computers. However, staff members have difficulty in accessing their resources on another staff member's computer, limiting their use of the system and efficiency.

Site Improvements

G2010 Roadways: A drop-off drive on the east side of the building provides access to the two public entrances. A loop drive on the west side provides a vehicular exit from the parking lot. *composite rating: 4.*

G2020 Parking Lots: A striped parking lot for 36 cars, including two spaces reserved for the handicapped, is situated to the north of the building. Storm water drainage from paved parking areas is effective during moderate rains. *composite rating: 4.*

G2030 Pedestrian Paving: Handicapped access to the one staff and two public entrances appears to be compliant, however, the other egress points from the building do not provide an accessible route. *composite rating: 3.*

G2040 Site Development: Lighting on the site uses metal halide lamps and appears adequate. One flag pole and a rack for 28 bikes are provided near the east-facing public entrance. *composite rating: 4.*

G2050 Landscaping: Large, mature trees surround the building. Shrubs and flower beds in planters ring the building. *composite rating: 4.*

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G3000 Site Utilities: Underground utilities which appear to be available at the site include water, sanitary sewer, telephone, and gas. Overhead utilities that appear to be available at the site include cable television, power, and telephone. *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 19 to 20 feet on center. No evidence of settlement was observed, however, steel reinforcing has been exposed in several locations of the foundation walls. *rating: 3.*

B1010 Floor Slabs: Interior concrete floors are two-inch thick topping slab over precast concrete channels. Reinforcing within the precast channels is not noted on 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 columns and reinforced and grouted masonry columns, supporting steel trusses, beams, and open-web steel joists. Masonry walls provide lateral bracing around the perimeter. *rating: 4.*

B2010 Exterior Walls: The building uses double- and triple-wythe brick veneer walls, with four-inch thick concrete masonry unit sandwiched between face brick in triple-wythe walls. Precast concrete fascia panels ring the building. No insulation appears to have been provided within the exterior, as indicated on the construction drawings, but is difficult to verify from visual inspection. A crack in the brick joints is evident at the north-facing public entrance. *rating: 3.*

B2020 Exterior Windows: Window units are typically fixed glass, with single-pane glass in aluminum frames. *rating: 0.*

B2030 Exterior Doors: Aluminum storefront systems are used at both public entrances to the building, also fixed single-pane glass in aluminum frames. There is no indication the glass is tempered. The other three exterior doors in the building are hollow metal in a hollow metal frame. *rating: 2.*

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 not indicated on the original construction drawings. Roof leaks which have developed over the years appear to have been remedied with the replacement of the roof membrane in 1996. *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.

C1020 Interior Doors & Hardware: The interior doors are solid core wood in aluminum frames. Door hardware consists of bronze doorknobs, which are not ADA compliant. Panic hardware is only provided on the one hollow metal exit door, and appears to be original to the building. *composite rating: 2.*

C3010 Wall Finishes: Predominate wall finishes throughout are face brick with pre-cast concrete panels above windows. Toilet Rooms 111 and 115 have ceramic wall tiles and other areas use painted drywall. The colors offer acceptable light reflectance, but do not appear to be a cleaning or maintenance problem. *composite rating:* 4.

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C3020 Floor Finishes: Floor covering throughout the building is predominantly carpet tile, with brick pavers at the entrances and Circulation 101, vinyl composition tile used in utility and staff areas, and ceramic tile used in Toilet Rooms 111 and 115. Generally, floor finishes are in good condition. *composite rating: 3.*

C3030 Ceiling Finishes: The primary ceiling finish throughout the building is paint on plaster. All 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 appear to be adequate, except for the handrail, which is not code-compliant. *rating: 3.*

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

Z1020 Handicapped Accessibility: The building provides four means of egress at grade level, of which the two public entrances are accessible routes. Toilet Rooms have been modified from their original configuration, and meet the majority of current TAS standards. *rating: 3.*

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 each space were installed when the building was opened, and are in fair condition. *composite rating: 2.*

Mechanical System Description

A Mechanical Room houses two air handling units (AHU's) with and a gas-fired hydronic boiler. One AHU is a multi-zone unit with seven dampers in the supply air ductwork but appears to share one common thermostat in the main Circulation area. The other AHU is a single zone constant volume system which serves Staff Work Room 109 and adjacent rooms.

The refrigeration cooling system consists of a direct expansion (DX) coil in each air handling unit and a separate 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-inch city water service to the building. *rating: 4.*

D2020 Domestic Water Heater: A 38-gallon gas-fired hot water heater rated 40,000 Btu/hr input is located in the Mechanical room. The water heater was installed in 2003. There is a domestic hot water circulating pump. System 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: According to the original construction drawings, the building utilizes only interior roof drains for storm water collection at the roof. Piping for roof

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drainage is collected in the crawl space under the floor and appears to be of adequate size. *rating:* 4.

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

Air Conditioning System

D3030 Compressor/Condensers: There are two air cooled condensers located outside. Both condensers utilize refrigerant R-22 and were installed in 1993. One condenser is a Carrier nominal 30-ton unit with a single semi-hermitic reciprocating compressor and two condenser fans with an Energy Efficiency Ratio (EER) of 10.1. The other condenser is a Carrier nominal 5-ton unit with single compressor and single condenser fan with a SEER of 10.0. Units are approaching their life expectancy. *rating: 1.*

D3040 Air Handling Equipment: The Carrier multi-zone air handling unit was installed in 1993. It has a DX coiling coil and a hydronic heating coil. It appears to be in good condition, but its years in service are approaching replacement since average life expectancy for an AHU is 20 years. Mechanical Room 103 is very congested and difficult to access equipment. AHU configuration does not allow good access for coil cleaning or inspection. There does not appear to be any humidity controls or capabilities to limit high humidity levels. *rating: 2.*

D3040 HVAC Distribution Systems: The main return air duct for the facility is located in a crawl space area which is difficult to access or inspect. All ductwork is original to the facility (1967). Staff indicates there are issues with Staff Work Room 109 being too cold. This appears to be a balancing issue with too much air into the room. *rating: 3.*

D3040 Refrigerant Piping: Piping is copper tube with flexible elastomeric insulation. *rating: 4.*

Heating System

D3040 Boiler: The Laars hydronic heating boiler (850,000 Btu/hr input) is an atmospheric-type boiler. It was installed in 2001 and appears to be in good condition. *rating: 4.*

D3040 Pumps: There is one heating water constant flow pump and appears to be original to the facility and has reached its 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: 2.*

Automatic Temperature Controls

D3060 Automated HVAC Controls: Controls appear to be original to the building. Controls are local only with 3-way valves at all the coils. *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 115 has one wall mounted lavatory, one urinal, and one wall mount flush valve water closet which is handicap accessible. All fixtures are vitreous china and are in good condition. Women's Toilet 111 has one wall mount handicapped accessible lavatory and two wall mount flush valve water closets with one water closet handicap accessible. All fixtures are vitreous china and are in good condition. The staff Toilet 105 has one wall mount lavatory and one wall mount flush valve water closet. Fixtures are vitreous china and in good condition.

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There is one sink in the Staff Break Room 104, which is in good condition. There is one floor mounted mop sink in the Janitor room 113 in good condition. One single electric water cooler is provided in Lobby 116 and appears original to the building (1967) and is not TAS compliant. *composite rating: 3.*

D3040 Ventilation: Throughout most of the facility, air movement was good, however, odors in the public Toilet rooms 111 and 115 indicate a need for better toilet exhaust. *composite rating: 3.*

D3040 Diffusers: Diffusers are predominantly ceiling mounted with some sidewall air devices. Air devices are original to the building and show signs of discolor and rust. *composite rating: 2.*

D3060 Local Automatic Temperature Control: Thermostats provide control for the building. There are some issues with temperature swings in the building. *composite rating: 2.*

Fire Protection System

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

Electrical System Description

The electrical distribution system consists of one 800A, 120/208V, 3-phase, 4-wire distribution panel "M", one 225A, 120/208V, 1-phase, 3-wire branch circuit panel "B" and one 150A 120/208V, 1-phase, 3-wire branch panel "A". Panels "M" and "B" are located in the Electrical Room. Panel "A" is located adjacent to a bookcase in the Office Area. Panel "M" feeds HVAC equipment and panels "A" and "B". Panels are original and show signs of corrosion. Lighting is automatically controlled. The facility has no emergency power system.

D5010 Service Equipment: Panel "M" is in good condition. There is no evidence that feeders need to be replaced. *rating: 4.*

D5010 Power Distribution Panels: Panel "A" has one space available for additional branch circuits. Panel "B" has four. Although this is enough for normal maintenance and small modifications, it is not enough in case of renovation work. Panels "A" and "B" also show signs of corrosion and need replacing. *rating: 0.*

D5020 Lighting and 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 provide power on reading area for computers. Wiring to computers includes power strips. Wires on the floor create tripping hazards. Not all areas are covered. Some of the floor boxes need repair. *composite rating: 3.*

D5020 Lighting: 4x4 fluorescent fixtures are the primary source of illumination. Lighting levels are more than 80 foot-candles (FC) at Reading Areas. The lighting system in the Reading Area does not comply with modern energy codes. Switching in public areas is automatic through occupancy sensors. Significant energy savings could be achieved by replacing current lighting fixtures with energy-efficient ones. *composite rating: 1.*

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D5030 Data Infrastructure: Data infrastructure is managed from a wall-mounted cabinet in Staff Break Room 104. This cabinet, typical for most branches, 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: The facility does not have a public address system. Library personnel use the intercom for mass notification purposes. This system is adequate. *composite rating: 4.*

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

D5040 Fire Alarm: This building does not have a fire alarm system. It has smoke detectors only. *composite rating: 0.*
D5040 Emergency/Egress Lighting: This facility does not have an emergency/egress lighting system. *composite rating: 0.*

Additional Systems

The following are systems which 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 the essential facilities within, but some additional requirements are applicable. Building egress, door hardware, the drinking fountain, and some furniture placement within the facility create limited accessibility to many areas.

Exiting: Provisions are inadequate, due to one of the primary exits from the public areas discharging into an enclosed courtyard with no further means of egress. This deficiency should be remedied immediately.

Install Building Energy Management System: The consultants recommend replacement of the current building automation system for energy management.

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

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

Construction Cost Impacts

The building-wide survey includes the identification of issues which 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: Limited land is available for future horizontal expansion, or for staging of construction.

Construction Difficulty: No other limitations to additional construction apparently exist 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.

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Existing Facility Assessment

Phasing: Future horizontal additions could be constructed, but not without impact to the existing operations. It is not conceivable that an on-site addition could be completed while providing adequate parking.

Historic Issues: The building is not located within a historic district.

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

Costs to Retrofit Existing Building Systems

Table A5.9.6 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 $527,543, or $55.04 per square foot. When excluding the cost for new furniture of $82,373, the total cost to retrofit building systems is reduced to $445,170. Most systems affected would be made more energy efficient, and/or fully code compliant.

Table A5.9.6
Retrofit of Existing Building Systems, Ridglea Library

uniformat code	construction element	rating	weight factor	square footage		unit cost	total cost	comments
A1010	Foundations	3	25%	9,585	bgsf	$5.22	$12,508	cover exposed rebar
A1030	Slabs on grade	4	0%	9,585	bgsf	2.65	0	elevated floor slabs throughout
B1020	Superstructure	4	0%	9,585	bgsf	12.45	0	
B2010	Exterior walls	3	25%	9,585	bgsf	9.55	22,884	re-point cracks in brick mortar joints
B2020	Exterior windows	0	110%	9,585	bgsf	8.11	85,508	replace single-pane glass
B2030	Exterior doors	1	75%	9,585	bgsf	4.85	34,865	replace glass, add panic hardware
B3010	Roofing	4	0%	9,585	bgsf	6.89	0	roof was replaced in 1996
C1020	Interior doors & hardware	3	25%	7,322	nasf	3.15	5,766	replace door knobs with levers
C2010	Stairs/ramps/ladders	3	25%	9,585	bgsf	7.55	18,092	provide enclosure exit, add handrail
C3010	Wall finishes	4	0%	7,322	nasf	3.33	0	
C3020	Floor finishes	3	25%	7,322	nasf	3.15	5,766	rotate carpet tiles to even wear
C3030	Ceiling finishes	4	0%	7,322	nasf	3.28	0	
D2010	Plumbing fixtures	3	25%	7,322	nasf	2.50	4,576	replace drinking fountain
D2020	Domestic water distribution	4	0%	9,585	bgsf	1.72	0	
D2020	Domestic water heaters	3	25%	9,585	bgsf	0.25	599	add thermostatic mixing valve
D2030	Sanitary collection	4	0%	9,585	bgsf	1.15	0	
D2040	Storm water collection	4	0%	9,585	bgsf	1.77	0	
D3020	Boilers	4	0%	9,585	bgsf	4.78	0	
D3030	Compressors/condensers	0	110%	9,585	bgsf	2.05	21,614	replace existing equipment
D3040	Air handling equipment	3	25%	9,585	bgsf	7.10	17,013	add humidity control & better access

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Table A5.9.6 *(continued)*
Retrofit of Existing Building Systems, Ridglea Library

uniformat code	construction element	rating	weight factor	square footage		unit cost	total cost	comments
D3040	Refrigerant piping	4	0%	9,585	bgsf	1.05	0	
D3040	Heating system pumps	0	110%	9,585	bgsf	0.87	9,173	replace existing equipment
D3040	Distribution piping	2	50%	9,585	bgsf	1.05	5,032	add insulation to piping
D3040	HVAC ductwork	3	25%	7,322	nasf	4.25	7,780	balance the system
D3040	Ventilation	4	0%	7,322	nasf	2.03	0	
D3050	HVAC diffusers	2	50%	7,322	nasf	1.21	4,430	replace rusted/discolored grilles
D3060	Building temperature controls	0	110%	7,322	nasf	3.15	25,371	replace with new system
D3060	Local temperature controls	2	50%	7,322	nasf	0.48	1,757	add thermostats
D4010	Fire protection system	0	110%	9,585	bgsf	3.90	41,120	install new system
D5010	Electrical service equipment	4	0%	9,585	bgsf	1.97	0	
D5010	Distribution panels	0	110%	9,585	bgsf	3.43	36,164	replace/upgrade 2 panels
D5010	Branch power distribution	4	0%	9,585	bgsf	$2.30	0	
D5020	Lighting fixtures	1	75%	7,322	nasf	3.50	19,220	replace lighting in public areas
D5020	Emergency lighting	0	110%	7,322	nasf	0.90	7,249	install new system
D5020	Convenience receptacles	3	25%	7,322	nasf	2.90	5,308	add floor outlets
D5030	Data infrastructure	4	0%	9,585	bgsf	3.77	0	
D5030	Public address system	4	0%	7,322	nasf	1.55	0	
D5030	Building security system	0	110%	9,585	bgsf	1.10	11,598	install new system
D5040	Fire alarm system	0	110%	9,585	bgsf	1.75	18,451	install new system
D5040	Emergency power	0	110%	9,585	bgsf	1.66	17,502	install new system
E2010	Casework & millwork	4	0%	7,322	nasf	8.22	0	
E2020	Furniture & equipment	2	50%	7,322	nasf	22.50	82,373	replace all tables & chairs
G2010	Roadways	4	0%	9,585	bgsf	1.12	0	
G2020	Parking Lots	4	0%	9,585	bgsf	0.97	0	
G2030	Pedestrian Paving	4	0%	9,585	bgsf	0.76	0	
G2040	Site Development	4	0%	9,585	bgsf	1.42	0	
G2050	Landscaping	4	0%	9,585	bgsf	0.23	0	
G3000	Site Utilities	4	0%	9,585	bgsf	1.44	0	
Z1010	Handicapped access	3	25%	9,585	bgsf	2.43	5,823	address drinking fountain, doors

TOTAL RETROFIT COST   **$527,543**