

SEMINARY SOUTH LIBRARY

The Seminary South Library is a branch of the Fort Worth Library, located in south Fort Worth. The building occupies a prime location just north of and facing the Le Gran Plaza retail mall, west of Interstate 35W and 6.72 miles from the Central Library.

Official Name: Seminary South Library

Building Address: 501 East Bolt Street

Library Facility Code: SEM

Site Description

The building is situated on a landscaped lot of 0.55 acres, facing Bolt Street. The topography of the site is virtually flat. 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 SEM-1 illustrates the site of the Seminary South Library (11" x 17" overleaf).

Architectural Description

Construction of the original building was completed in 1967, and renovated in 2006. The facility appears to be well built and in good condition for its age. Drawing SEM-2 depicts the Ground Floor of the Seminary South Library and the square footage of each room of the Ground Floor (11" x 17" overleaf) as tabulated in Table A5.11.1.

Square Footage: There are currently 6,834 building gross square feet (bgsf). There is 5,860 net assignable square feet (nasf) within the facility. The library currently occupies the entire building. Table A5.11.1 contains a room-by-room square footage tabulation for the facility.

Evaluations for both public & staff spaces of the facility

Table A5.11.1

Existing Square Footage Tabulation, Room-by-Room, Seminary South Library

Summary

	floor	net assignable square footage	building gross square footage	efficiency
100	Ground Floor	5,860.09	6,834.07	85.75%
TOTAL		5,860.09	6,834.07	85.75%

Ground Floor

room no.	room name	square footage net assignable	square footage building gross
101	Library Room	4,241.18	
102	Office	128.32	
103	Mechanical Room		201.69
104	Staff Work Room	515.69	
105	Toilet		22.99
106	Women's Toilet		112.38
107	Vestibule		18.38
108	Vestibule		13.47
109	Men's Toilet		75.35
110	Staff Break Room	143.19	
111	Closet	14.13	
112	Closet	12.68	
113	Closet	10.23	
114	Circulation Desk	537.51	
115	Lobby	257.16	
assigned rooms and spaces		5,860.09	
unassigned walls, pipe chases, etc.			973.98
TOTAL			6,834.07
EFFICIENCY			85.75%

The T/PW facilities database attributes 7,741 bgsf to the Seminary South Library, which is actually the square footage

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under roof, including the roof overhang around the entire perimeter, as well as all of the enclosed space.

Trade Area Population

The population within the 8-minute drive time trade area of the Seminary South Library is 71,556, as determined by the Customer Analytics Consultants.

Driving Distance/Times to Other Libraries

Shamblee	3.42 miles	7 minutes
Central Library	6.72 miles	10 minutes

Demographics

Households with children	9,529
Persons age 17 and under	21,903
Persons age 18 to 64	42,440
Persons age 65+	7,213
Percent Black/African-American	27.8%
Percent Hispanic	55.6%

Output Measures

The Library Consultants calculated a number of measurements of operating efficiency and their respective rankings among the 15 current FWL libraries. Table 5.15.1 summarizes our findings for the Seminary South Library.

Table A5.11.2

Output Measures, Seminary South Library

<i>output</i>	<i>measure</i>	<i>ranking</i>
Contacts per capita	8.13	11 of 15
Cost efficiency per contact	\$1.24	2 of 15
Cost efficiency per SF to operate	\$82.38	11 of 15

Existing Facility Assessment

Collections

The current total collection size is 39,524. At 0.55 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 30.6 percent of the total, and the combined Children's/Teen collections are 43.5 percent of total. The library materials and services more likely to be used at Seminary are Spanish Materials, Juvenile DVDs, DVDs, Reference.

The space required to house the collections in an ADA/User-Friendly standard is 4,613 square feet, or 59.6% of the total building size.

Computers & Seating

Based on the number of computers provided for the public, the Seminary South Library, with 21, is well below "Basic" when compared to Texas State Library standards. To achieve the "Basic" level by the year 2020, Seminary South will need 36 public computers.

The current public seating ratio, including computers, at Seminary South is one seat per 750 (1:750) 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 Seminary South Library currently provides 20 parking spaces on site. At 6,800 gross square feet, 34 parking spaces would be needed at the Seminary South Library, in order to meet the minimum standard of one space per 200 bgsf of building, as currently sized.

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Staff workspace is 11.45% 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 208 nasf less than the minimum need of 879 nasf.

Table A5.11.3

Site & Building Capacity, Seminary South 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	5,860	8,927	65.6%
Building gross square feet	6,834	10,502	65.1%
Site area, in acres	0.55	0.96	57.4%
Parking spaces	20	53	38.1%

Growth Potential

Adaptability: The building is composed of one large open space, with a structural span of 70 feet east-to-west and 70 feet north-to-south. Changes to the configuration of the spaces appear to be very feasible.

Expandability: Additions to the north and the west appear most feasible, using the loop drive and vacant land for future horizontal expansion. 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 Seminary South Library is presented in Table A5.11.4 for fiscal years 2007 through 2009, providing statistics for PC logins, PC logins to library visits, and wi-fi connections.

Existing Facility Assessment

Table A5.11.4

Historic Computer Usage, Seminary South Library

<i>service item</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>
PC Logins	31,110	30,547	31,453
PC Logins to Visits Ratio	23.1%	26.0%	23.8%
Wi-Fi Connections	n/a	281	1,778

Computer Network: Locations of computers were limited to where power and network connectivity could be delivered. Power poles are used. Wi-fi has been available since May of 2008.

Public Computers: A summary of the distribution of public computers is provided in Table A5.11.5 below. Computer reservation stations and print release stations are not included in the Adult Services quantity.

Table A5.11.5

Public Computer Distribution, Seminary South Library

<i>computer location</i>	<i>quantity</i>
Public Access Catalog (PAC)	2
Adult Services	19
Teen Services	0
Children's Services	0
TOTAL	21

No separate grouping of computers is provided for children. Customers may wait one to one and one-half hours at especially busy times, such as after school. Computers are grouped in four different locations, which is less efficient for staff to provide assistance to customers. One reservation station and one print release station are provided.

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Public Technology: During the consultant's visit, all tables were filled with Wi-Fi users. Adults were using Wi-Fi in the Children's area so that they could have access to power outlets. Few outlets existed in the same location as the seating. The TV was not in use because it was considered a distraction. Customers have requested scanners, which the library does not provide. A materials security system is installed.

Computer Training: Training is not offered.

Self-Service: No self-check is available.

Study Rooms & Meeting Spaces: No study rooms or meeting spaces exist.

Technology for Staff: A total of eight of staff computers are provided. The quantity of computers and printers for staff is sufficient. Outdated software installed on the staff computers make it difficult for staff to perform some tasks. An outside book return deposits materials inside the library. The outside return is open 24/7. Materials are deposited directly into the staff workroom. No fire protection system is installed to protect against hazardous items coming in through this return. Staff estimated that more than 40% of items are returned through the outside return. Modifications would be needed to the workroom to change this return to RFID, to install a small sorter, and to add fire protection.

Site Improvements

G2010 Roadways: An asphalt loop drive provides access to the public entrance, exterior book drop box, and an exit from the parking lot. The asphalt is cracked in various locations. *composite rating: 3.*

Existing Facility Assessment

G2020 Parking Lots: A striped asphalt parking lot for 20 cars, including two spaces reserved for the handicapped, is situated to the west of the building. The asphalt is cracked in various locations. Storm water drainage from paved parking areas is effective during moderate rains. *composite rating: 3.*

G2030 Pedestrian Paving: Handicapped access to the public entrance appears to provide an accessible route, as is the only other egress point from the building. However, the pavement around the entrance is severely cracked and in need of replacement. *composite rating: 1.*

G2040 Site Development: Pole- and building-mounted lighting on the site uses metal halide lamps and appears adequate. One flag pole and one rack for 12 bikes are provided at the public entrance. A back-lit sign is positioned near the main entrance. *composite rating: 4.*

G2050 Landscaping: Large, mature live oak trees and crepe myrtles are present around the site. Shrubs and flower are planted along the south and east facades of the building. *composite rating: 4.*

G3000 Site Utilities: Underground utilities that appear to be available at the site include water, sanitary sewer, storm sewer, 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. The footings are spaced in a square grid 12 feet on center. Some evidence of settlement was observed, in terms of cracks in the floor, walls, and the exposed foundation. *rating: 3.*

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A1030 Slabs on Grade: Interior concrete floors are typically six-inch thick slab-on-grade type, reinforced with #5 re-bars, per the original construction drawings. Some evidence of settlement was observed. *rating: 3.*

Building Shell/Exterior Envelope

B1020 Superstructure: The building's superstructure is comprised of load-bearing steel-reinforced concrete and steel pipe columns, supporting steel beams and open-web steel joists supporting the roof deck. Eight-inch thick masonry walls provide lateral bracing around the perimeter. *rating: 4.*

B2010 Exterior Walls: The building uses a brick veneer, backed by concrete masonry unit bearing walls 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: 3.*

B2020 Exterior Windows: Window units are typically clerestory type, with fixed glass, with single-pane glass in aluminum frames. An aluminum storefront entrance is located on the south façade of the building, also fixed single-pane glass in aluminum frames. *rating: 0.*

B2030 Exterior Doors: None of the exterior doors appear to be original to the 1967 building. The entrance doors are aluminum with vision glass, which 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 exit from the public area, but none of the other exit doors. *rating: 1.*

B3010 Roofing: The roof of the building is sloped over the majority of the building, but flat over the staff areas. A metal fascia rings the roof around the entire building. The roof utilizes a two-ply modified bituminous/thermoplastic membrane roofing system, according to the T/PW database.

Existing Facility Assessment

The substrate material under the roofing membrane is gypsum decking, as indicated on the original construction drawings. Any roof leaks that were 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 either wood or hollow metal frames. Door hardware consists of bronze doorknobs, which are not ADA compliant. Panic hardware is provided on some of the exit doors, but not all. *composite rating: 3.*

C3010 Wall Finishes: Predominate wall finishes throughout are light colored paint on plaster partitions. Selected areas have exposed concrete block or face brick walls, which are also painted. Toilet rooms 106 and 109 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 115 and ceramic tile used in Toilet Rooms 105, 106 and 109 and Vestibules 107 and 108. 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- two lay-in suspended acoustical ceiling tile, with paint on plaster in the Toilets and Closets. All ceiling finishes appear to be in good condition. *composite rating: 3.*

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Vertical Movement & Egress

C2010 Stairs: No fire stairs are required for this one-story building. No steps or ladders are needed either. *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, all of which appear to be accessible routes. Toilet Rooms 106 and 109 have been modified from their original configuration, but do not meet all current TAS standards. Toilet Room 105 has not been modified and is not compliant. *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 are those installed when the building was renovated, and are in good condition. *composite rating: 4.*

Mechanical System Description

A Mechanical Room houses two single zone air handling units (AHU's) and a gas-fired hydronic boiler. One AHU serves the main Library area and the other AHU serves the Workroom and ancillary areas. Each AHU is constant volume.

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.

Existing Facility Assessment

The heating system consists of a hydronic gas-fired boiler and an end-suction circulation pump. The 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 service to the building. *rating: 4.*

D2020 Domestic Water Heater: A 40-gallon gas-fired hot water heater rated 40,000 Btu/hr input is located in Mechanical Room 103. The system is provided with an in-line circulation pump. It was installed in 2003. The water heater 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: Scuppers and both interior and perimeter drains provide roof drainage, according to the original construction drawings. Piping for roof drainage 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/Condenser: There are two Carrier air cooled condensers that utilize refrigerant R-22. One condenser is a nominal 15-ton unit with a single circuit semi-hermetic compressor with two condenser fans, and has an Energy Efficiency Ratio (EER) of 9.8. This unit was installed in 2005.

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There is excessive noise and vibration from this unit due to missing and loose screws. The other condenser is a nominal 4-ton single circuit unit with a scroll compressor and one condenser fan, and has a Season Energy Efficiency Ratio (SEER) of 13. This unit was installed in 2006 and appears in good condition. Overall tonnage seems slightly undersized for the facility. *rating: 3.*

D3040 Air Handling Equipment: The larger air handling unit (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 its years in service are approaching replacement. Average life expectancy for unit is about 20 years. Mechanical Room 103 is very congested and difficult to access equipment. Most equipment only has access to one side. AHU configuration does not allow good access for coil cleaning or inspection.

The smaller AHU is a single zone Magicaire unit that is suspended in a horizontal configuration. This unit was installed in 1993 and has reached its life expectancy. There is no auxiliary drain pan located underneath the unit. *rating: 3.*

D3040 HVAC Distribution Systems: All heating, ventilating, and air conditioning (HVAC) systems are ducted supply and ducted return air with ancillary areas providing a return path through door grilles. Staff indicated Work Room 104 is typically too warm in the summer time. *rating: 3.*

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

Heating System

D3040 Boiler: The Laars hydronic heating boiler (600,000 Btu/hr input) is an atmospheric-type boiler. It was installed in 2001 and appears to be in good condition. The Boiler area in Mechanical Room 103 is very congested, making it difficult to access equipment. *rating: 2*

Existing Facility Assessment

D3040 Pumps: The end-suction heating circulation pump appears to be original to the building (1967) and has reached its life expectancy. *rating: 0.*

D3040 Distribution Piping: Piping is primarily black steel and copper tube. *rating: 4.*

Automatic Temperature Controls

D3060 Automated HVAC Controls: No building automation system is provided, and building temperature controls are by local thermostat 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 109 has one wall-mounted handicapped accessible lavatory, one urinal, and one handicap accessible wall-mounted flush valve water closet. All fixtures are vitreous china. Women's Toilet 106 has one wall-mounted handicapped accessible lavatory and two wall-mounted flush valve water closets. All fixtures are vitreous china. These fixtures are in good condition. Staff Toilet 105 has one wall-mounted flush valve water closet and one wall-mounted lavatory, neither of which are handicap accessible.

Staff Break Room 110 has one deep single-compartment stainless steel sink, which is in good condition. There is one wall-mounted slop sink in Mechanical Room 103, not in good condition. One bi-level electric water cooler is provided near Circulation Desk 114, in good condition. *composite rating: 2.*

D3040 Ventilation: Throughout most of the facility, air movement was good. Staff indicates there are lingering odors in Men's Toilet 109, possibly due to exhaust fan issues. The facility has ceiling mounted fans throughout. *composite rating: 4*

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D3040 Diffusers: Diffusers are predominantly ceiling mounted, square in most public spaces and are in good condition. *composite rating: 4.*

D3060 Local Automatic Temperature Control: Non-programmable thermostats control temperature in the building. There does not appear to be any humidity controls or capabilities to limit high humidity levels. *composite rating: 3.*

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 400A, 120/208V, 3-phase, 4-wire distribution panel "A" and two 225A, 120/208V, 1-phase, 3-wire branch circuit panels "B" and "C" located in Mechanical Room 103. Distribution panel "A" feeds HVAC loads and panels "B" and "C". Lighting is automatically controlled. The facility has no emergency power system.

D5010 Service Equipment: Distribution panel A has one space available for additional loads. Panel A is original to the building and shows signs of corrosion and needs to be replaced. There is no evidence that feeders need to be replaced. *rating: 2.*

D5010 Power Distribution Panels: Panels B and C have 20 circuits each and no spaces available for additional circuits. They may need to be upgraded to 30 or 42 circuits as part of normal maintenance to provide additional capacity. Panels are original to the building, show signs of corrosion, and need to be replaced. *rating: 1.*

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

Existing Facility Assessment

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: Computers and other loads in the Reading Area are fed through receptacles on strategically located narrow walls. These walls serve as area signs and provide a place to install data and power raceways. There are no floor-mounted receptacles. There are wall-mounted receptacles for laptop use. *composite rating: 4.*

D5020 Lighting: 2x4 fluorescent fixtures are the primary source of illumination. Lighting levels are approximately 50 foot-candles (FC) at Reading Areas and 10 FC at books. Switching in public areas is automatic through occupancy sensors. Interior lighting is in good condition. *composite rating: 4.*

D5030 Data Infrastructure: Data infrastructure is managed from a wall-mounted cabinet in the Office Area. 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 system for mass communications. *composite rating: 0.*

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

D5040 Fire Alarm: This building does not have a fire alarm system. *composite rating: 0.*

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D5040 Emergency/Egress Lighting: This facility does not have an emergency/egress 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.

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

Existing Facility Assessment

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: Limited land is available for future horizontal expansion, or for staging of construction.

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 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 A5.11.6 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 \$305,174, or \$44.66 per square foot. Of most concern at this facility – and a unique characteristic among FWL libraries – is the significant amount of soil movement evidenced by crack concrete and asphalt pavement and building foundations.

Table A5.11.6

Retrofit of Existing Building Systems, Seminary South 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>
A1010	Foundations	3	25%	6,834 bgsf	\$5.22	\$8,918	repair cracks, investigate source
A1030	Slabs on grade	3	25%	6,834 bgsf	2.65	4,528	repair cracks, investigate source
B1020	Superstructure	4	0%	6,834 bgsf	12.45	0	
B2010	Exterior walls	3	25%	6,834 bgsf	9.55	16,316	insulation, cracks
B2020	Exterior windows	0	110%	6,834 bgsf	8.11	60,966	replace with insulated glass
B2030	Exterior doors	1	75%	6,834 bgsf	4.85	24,859	replace with tempered/insulated glass
B3010	Roofing	4	0%	6,834 bgsf	6.89	0	roof was replaced in 1996
C1020	Interior doors & hardware	3	25%	5,860 nasf	3.15	4,615	replace door knobs with levers
C2010	Stairs/ramps	4	0%	6,834 bgsf	7.55	0	
C3010	Wall finishes	4	0%	5,860 nasf	3.33	0	
C3020	Floor finishes	4	0%	5,860 nasf	3.15	0	
C3030	Ceiling finishes	3	25%	5,860 nasf	3.28	4,805	repair damaged areas
D2010	Plumbing fixtures	2	50%	5,860 nasf	2.50	7,325	replace select fixtures
D2020	Domestic water distribution	4	0%	6,834 bgsf	1.72	0	
D2020	Domestic water heaters	3	25%	6,834 bgsf	0.25	427	add thermostatic mixing valve
D2030	Sanitary collection	4	0%	6,834 bgsf	1.15	0	
D2040	Storm water collection	4	0%	6,834 bgsf	1.77	0	
D3020	Boilers	2	50%	6,834 bgsf	4.78	16,333	modify Mech. Room for better access
D3030	Compressors/condensers	3	25%	6,834 bgsf	2.05	3,502	need some maintenance
D3040	Air handling equipment	3	25%	6,834 bgsf	7.10	12,130	replace units/add humidity control
D3040	Refrigerant piping	4	0%	6,834 bgsf	1.05	0	
D3040	Heating system pumps	0	110%	6,834 bgsf	0.87	6,540	replace existing equipment
D3040	Distribution piping	4	0%	6,834 bgsf	1.05	0	
D3040	HVAC ductwork	3	25%	5,860 nasf	4.25	6,226	balance system
D3040	Ventilation	4	0%	5,860 nasf	2.03	0	

Table A5.11.6
Retrofit of Existing Building Systems, Seminary South 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	4	0%	5,860	nasf	\$1.21	\$0
D3060	Building temperature controls	0	110%	5,860	nasf	3.15	20,305
D3060	Local temperature controls	3	25%	5,860	nasf	0.48	703
D4010	Fire protection system	0	110%	6,834	bgsf	3.90	29,318
D5010	Electrical service equipment	2	50%	6,834	bgsf	1.97	6,731
D5010	Distribution panels	1	75%	6,834	bgsf	3.43	17,580
D5010	Branch power distribution	4	0%	6,834	bgsf	2.30	0
D5020	Lighting fixtures	4	0%	5,860	nasf	3.50	0
D5020	Emergency lighting	0	110%	5,860	nasf	0.90	5,801
D5020	Convenience receptacles	4	0%	5,860	nasf	2.90	0
D5030	Data infrastructure	4	0%	6,834	bgsf	3.77	0
D5030	Public address system	0	110%	5,860	nasf	1.55	9,991
D5030	Building security system	4	0%	6,834	bgsf	1.10	0
D5040	Fire alarm system	0	110%	6,834	bgsf	1.75	13,155
D5040	Emergency power	0	110%	6,834	bgsf	1.66	12,479
E2010	Casework & millwork	4	0%	5,860	nasf	8.22	0
E2020	Furniture & equipment	4	0%	5,860	nasf	22.50	0
G2010	Roadways	3	25%	6,834	bgsf	1.12	1,914
G2020	Parking Lots	3	25%	6,834	bgsf	0.97	1,657
G2030	Pedestrian Paving	1	75%	6,834	bgsf	0.76	3,895
G2040	Site Development	4	0%	6,834	bgsf	0.42	0
G2050	Landscaping	4	0%	6,834	bgsf	0.23	0
G3000	Site Utilities	4	0%	6,834	bgsf	1.44	0
Z1010	Handicapped access	3	25%	6,834	bgsf	2.43	4,152
TOTAL RETROFIT COST						\$305,174	