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# METROPOLITAN LIBRARY COMMISSION OF OKLAHOMA COUNTY

# JOINT MEETING OF THE FINANCE & LONG-RANGE PLANNING COMMITTEES

# AGENDA

Members:

<u>Finance Committee</u> Hugh Rice, Chair Nancy Anthony Scott Duncan Greg Womack

Long-Range Planning Committee Millicent Gillogly, Chair Jose Jimenez Deanna Hannah Alyne Strube Hugh Rice

Tuesday, October 26, 2004 at 3:30 pm Belle Isle Library 5501 N. Villa Oklahoma City, OK 73112 Telephone: (405) 843-9601

NOTE: Comments from the general public will be limited to 15 minutes with time prorated among speakers. Preference will be given to residents of Oklahoma County. Persons signing up to address the committee must list their <u>residential</u> address and personally sign a speaker form.

I. Call to Order and Establishment of Quorum - Hugh Rice, Chair

II. Update on Capitol Hill Library project (Documents will be provided at meeting)

Cc: Metropolitan Library Commission Administrative Team Managers and Supervisors President, Staff Association

Joint Committee Meeting Finance & Long-Range Planning Committees Agenda Item II MLC FY 2004-05 October 26, 2004

# CAPITOL HILL LIBRARY PROJECT ASSESSMENT

# HISTORY

In 1999, Oklahoma City requested that library staff develop a bond package, which would provide funding for a Northwest Library. As part of the package, MLS was asked to review the anticipated needs of the other OKC libraries. Through the efforts of the Commission, staff and the community, 3 other library projects were developed and included in the bond issues, which were approved by the citizens in 2000. MLS developed a budget for the 3 other projects, one of which was Capitol Hill (CH). The break down of this budget is as follows

PURPOSE	FUNDING	SOURCE
Building - Bathrooms & Meeting Area	\$320,000	OKC
•	\$205,332	MLS
Owner's Furniture & Equipment	\$326,110	MLS
TOTAL	\$851,442	

# LATER

With the opening of the Choctaw, Luther and Downtown Libraries this year, the staff has begun making preparations for the CH project. Based upon an in-house review of the building, the staff recommended that a formal Building Assessment be conducted.

Jim Davis of Davis Design Group was hired by the Library to do an analysis of the Capitol Hill Library as requested and approved by the Commission in August of 2004. Mr. Davis has completed an initial summary which included an analysis by a structural, electrical and mechanical engineer. These reports will be available at the meeting.

After reviewing DDG's executive summary and the reports from the engineers, we believe that there are several separate and distinct issues that need to be analyzed further.

Find below a brief recap of these issues:

- Age of Existing Capitol Hill Building
- The mechanical & electrical systems do not comply with current codes and are near the end of their useful life; there are many life-safety and Americans with Disabilities Act (ADA) issues which need to be addressed; future needs could necessitate a structural analysis of the building.

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- Potential Asbestos Abatement
- While an asbestos abatement project was completed in 1981, there are indications that additional abatement is needed.
- Planned library renovation as part of OKC bond project
- The staff has started the process of defining the programming needs for the library. These require additional review & refinement.
- Potential temporary relocation of Capitol Hill Library operations
- While the scope of the renovation will impact this issue, it is possible that either the library would need to be relocated or closed during this work
- Relocation of Tech Processing and Cataloging
- Both of these operations are in need of additional space for both the current and anticipated future needs.

# ADDITIONAL COMMENTS

Analysis of these issues will involve the projected needs and growth of the Library System as related to materials purchasing, cataloging and processing. The addition of the new northwest library will require a significant amount of processing and cataloging as will the continued growth of the system as a whole. The materials budget can not be increased to keep up with the demands of the public unless the cataloging and processing staff as well as space for these operations is increased. In effect, the future growth of the system is somewhat dependent upon finding increased space for these two support operations.

Another factor will be the projected growth and/or change in the demographics of the Capitol Hill neighborhood.

All of the above issues clearly have costs associated with them, many of which where not considered when the bond package costs were developed. Additionally, the order in which they are executed will have an impact.

The staff will work with the architectural firm to finalize the analysis with specific recommendations and approximate costs.

In summary, the Library Staff will continue to work with Davis Design Group to explore options, including the cost and time impact of renovation of the Capitol Hill Library and/or possible relocation of the Technical Processing/Cataloging Departments, and will present this information to both committees with specific recommendations and projected costs for possible solutions in late January or Early February.

# **FYI...**

The Attached Information was handed out at the

# Long-Range Planning Committee Meeting On October 26, 2004.



# davis design group

architecture interiors construction management planning

# Capitol Hill Library Needs Assessment Survey Executive Summary

# The Capitol Hill Community

The Capitol Hill Library was constructed in the early 1950's on the corner of 26<sup>th</sup> street and Hudson in the area of Oklahoma City just to the south of the river called Capitol Hill. At the time the building was built the Capitol Hill area was a vital thriving segment of Oklahoma City that was experiencing such growth that it was considered the south downtown of Oklahoma City. The area high school and other major community structures were either built or being built in the area and 25<sup>th</sup> street was developing as a local downtown, including on street parking and larger regional retailers.

Over the past fifty years the area has witnessed significant changes in the development of the community. City development has moved to the south and large retail malls were developed away from the Capitol Hill area driving retailers from the area to the newer and more regional mall locations. Like most other older "in town" areas of large metropolitan cities, Capitol Hill experienced a decline in activity and development. Over the past fifteen years the Capitol Hill area has begun to redevelop as a large Hispanic area of Oklahoma City.

The library has continued to provide service to the community throughout the past fifty year history of the community.

# The Structure

The building is a two story structure with a partial basement. The library is located on the main floor. Technical Processing for MLS is also located on the main floor, at the rear of the building and the garage. Cataloging for MLS is located on the second floor. Cataloging and Technical Processing were moved to the Capitol Hill Library in the mid 1970's.

The building is a concrete frame structure with brick exterior walls. The first floor was designed for library use. The second floor was originally designed for use as an auditorium and reading rooms. The mechanical systems are located in the basement.

The building has served the library system well over the past 50 years. However, like many other older structures, the building gradually began to fall short of current code requirements as building codes continued to develop. In addition, despite good maintenance efforts, the main building mechanical and electrical services are now experiencing major difficulties and are becoming extremely difficult and expensive to maintain.

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davis design group. l.l.c.

# **Current Needs**

As a reflection of the increased Hispanic community residing in the Capitol Hill area and their increased use of the library, the library has begun to experience growth in usage over the past few years. The library has the opportunity to reclaim the distinction as a community hub if it can redevelop the use of the spaces to accommodate the current needs of the people it serves.

Both Technical Processing and Cataloging are in critical need of additional space to keep up with the increased library system demands based on the overall system's growth. In addition, it became very clear during our site investigations that the two departments were having to operate in an extremely inefficient manner because of the constraints the Capitol Hill building placed on their work force.

# Area Conflicts

Based on information obtained from MLS and Capitol Hill staff in their responses to a Needs Assessment Survey and information obtained during our site visit we believe the following conflicts exist:

Existing space provided:

Basement	2,036 square feet	
First Floor	9,230 square feet	
	Second Floor	
Total	17,075 square feet	
Total "Usable" sq ftg	15,039 square feet	

5,809 square feet

Of the above existing square footage, only the first and second floor should be considered as "usable" space for public access usages such as the library or meeting rooms, etc. The basement has a number of code related issues that preclude it from being used as publicly accessible space unless the proposed renovation includes significant changes to the basement including access and egress.

Based on our review of the staff responses, the library needs to provide additional space for increased access by the public, provide space for reading and group study rooms, and provide additional space for Technical Processing and Cataloging. Each should include sufficient space to accommodate a five to ten year growth potential to assure continued long term use. Based on our initial square footage estimates we believe the required expanded usages exceed the existing available building area.

After visiting the site the space allocation problems the staff is currently experiencing becomes very clear and the difficulties the existing structure poses in providing a smooth work flow to solve those space issues. In a more efficient scenario Technical Processing and Cataloging should be located on the level, immediately adjacent to one another. However Technical Processing must be located on the ground level and have truck dock access to ship and receive

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materials. The relocation of Cataloging to the first floor to provide the immediate adjacency for greater efficiency is not possible because of space restraints.

## Site Survey

In September 2004 ddg and our team of consultants visited the building to conduct a visual analysis of the existing facility to determine the viability of the structure to meet the proposed additional uses and to examine the feasibility of the building systems condition for continued use.

The concrete frame structure appears to be in good condition showing no visible signs of distress or fatigue. Based on a cursory review of the original design drawings the structure appears to have been designed to withstand the intended loads imposed by the varied uses of the spaces.

The mechanical systems are showing wear and parts are becoming very difficult to obtain. The mechanical systems appear to have reached the end of their serviceability and efficient use. There are a number of significant code deviations that would need to be corrected as part of a renovation. It is the opinion of the consultant team that the mechanical systems are in need of replacement.

Like the mechanical system, the electrical systems have likewise reached a point of service where complete replacement is necessary. Parts for several of the electrical panels are no longer available. There a numerous code issues that would need to be addressed as part of a renovation.

From an architectural stand point the existing facility is in need of renovation to meet federal, state, and local codes and to provide the spaces needed to meet the needs of the community using the facility. Issues pertaining to code required public restroom access, and general access throughout the building are not provided. The elevator does not comply with local code or ADA requirements. Neither does the door hardware, or doors themselves comply. Access and egress to and from the building does not comply. Stair ways do not meet current code requirements either.

### Conclusions

After compiling staff responses, collecting consultant information, visiting the site on numerous occasions, observing how the library spaces are currently being used, and considering the projected expanded space requirements for each department currently occupying the building, we believe the library system should consider the following when making a decision on the future of this facility:

- The existing building is in need of a complete renovation which must include new mechanical and electrical systems throughout, and must address all applicable code issues, including the requirements of the ADA (The American with Disabilities Act).
- 2. Based on the projected space needs the existing building will not be able to house all of the activities currently occupying the building.

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3. The library may be in a position to reestablish itself as a "Community Center" in the area. In order for this to be accomplished it must provide spaces for meetings, seminars, and increased public access.

We recommend the Library consider the following options:

- 1. A complete renovation of the existing building.
- 2. Relocation of Technical Processing and Cataloging to another facility to provide them the additional space they require and make room for the expanded library functions.
- 3. Possibly demolish the garage portion of the building to make room for a new and more efficient receiving area and possibly add some additional on-site parking spaces.
- 4. Redesign the library allowing the first floor to contain the collections, computer access, and daily publicly accessible areas, including public restrooms.
- 5. Redesign the second floor to include a staff break room, staff offices and restrooms, and creating a multi-use auditorium space with reading and study rooms adjacent to the auditorium.
- 6. Possibly relocating the main entry to the west side of the building to more centrally locate the public amenities and provide more efficient use of the north end of the building for book or computer access.

We believe completion of the above recommendations would create a new library designed to meet the needs of the community surrounding it, and provide sufficient expansion space to allow the facility to remain in its location in to the foreseeable future.

Prepared by: davis design group, I.I.c.

James M. Davis, AIA



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teriors nstruction anasement	Date of Site Visit - 22 September 2004	Original contractions	- 808 M
larning	Architectural Issues		
	At the request of the Metropolitan Library Sy professionals was retained to visit the existin southeast corner of 26 <sup>th</sup> street and Hudson City. Our goal was to review the existing but that would need to be addressed as the libra to renovate the building. Issues such as the and electrical systems are addressed in the prepared by Mr. Tom Fox, P.E., a registered electrical report prepared by Mr. Mark Tatar Engineer. The structural elements of the bu James Hoffman, P.E., a registered structura findings are attached to this site observation The building is a two story concrete frame b first floor is currently being used by the libra of the library that houses the collections and is occupied by Technical Processing. The s Department. Technical Processing and Cat overcrowded conditions and in need of addi overcrowded and in need of additional space	vstem (MLS) a team of design ing Capitol Hill Library located in the Capitol Hill area of Okla ilding conditions and circums ary system continues with the e condition of the existing me attached Mechanical Report d Mechanical Engineer and the ian, P.E., a registered Electri- ilding were visually reviewed al engineer. Copies of their ini- n report. building with a partial baseme my for the publicly accessible d computer access and the re- second floor contains the Cata- taloging are currently operatin- itional space. The Library is a second	n on the ahoma tances ir plans chanical by Mr. tial nt. The portion mainder aloging ig in also
	During the course of the site review the follo needing correction or replacement or were conditions:	owing items were notes as eit found to be non-complaint co	her de
	Code Related Deficiencies		
1.	The existing elevator is not handicapped ac elevator will need to be removed and replac existing shaft or construction of a new shaft would include a larger cab for handicapped controls, a larger door opening, and code re	ccessible (ADA compliant). T ced, including the enlargement i, in order to comply. Complia access, new handicapped acception of a complication of the completed acception of the comple	he entire t of the nce cessible ces.
2.	Current fire alarm system does not comply and strobes will be required and an audible stations would be required as well	with code requirements. New voice alarm added. Addition	horns al pull
mes m. davis, ata <i>we decign gray, LLe.</i> 00 South Broadway ite 128	There are no public toilets on the first floor, restrooms would need to be installed on bo access. And if the decision is made to allow basement other than for maintenance, hand required in the basement as well.	New handicapped accessibl th floors for public and emplo w employee or public access dicapped accessible toilets wo	e public yee to the ould be
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- The existing toilets located in the basement do not comply with handicapped accessibility code requirements (ADA).
- All lavatories would need to be replaced to comply with ADA accessibility requirements.
- General access and egress to and from the building would need to be corrected to comply with handicapped accessibility requirements (ADA). There is currently only one handicapped access door, and there are no areas of refuge.
- 7. The marked handicapped accessible parking spaces are located at the rear of the building and not in compliance with current handicapped parking requirements. In addition, ideally, a handicapped accessible entry should be located more closely to the parking spaces. In either case, the pathway between the parking space and the entry must be compliant.
- 8. Many of the doors leading in and out of the majority of the spaces are not wide enough to comply with code requirements for handicapped accessibility, and in some cases no longer qualify for consideration as a minimum exit width.
- None of the stairs or the stair railings comply with current code requirements. The landings are not large enough to provide code required stair railing extensions. Renovation of the stairs to comply will most likely include modifications to the structural frame as well.
- None of the exterior glass is insulated. It is not a code requirement for glass to be insulated. However, in order to comply with the code required energy efficiency rating a new building must comply with, new insulated glass windows will most likely be required.
- 11. The existing book drop is not ADA compliant (mounting height).
- The building hardware, including door closers, is not ADA handicapped accessible complaint.
- Additional roof drains will be required to comply with current storm water relief requirements for flat roofs.
- 14. Relief scuppers will be required as well.
- 15. Code required emergency lighting is needed throughout.
- All millwork would need to be removed and replaced to comply with ADA handicapped accessibility requirements.

# **Use Related Deficiencies**

- The existing lighting fixtures are old and not energy efficient.
- 2. The building is not currently fire sprinklered.
- The existing satellite dish, currently mounted on the roof, is no longer operational and can be removed.
- The garage is not watertight. The building is currently experiencing roof leaks that prevent Technical Processing from being able to store materials on the floor for fear of damage from water.
- 5. It appears the rear and east parapet walls have experienced some amount of freeze thaw over the years. They have been covered with a metal facing on the interior face and some cracking in the brick was visible. After further research and investigation it seems the library has experienced water infiltration on both the rear and along the east walls. It appears the library has added a clear brick sealer along the east wall to minimize water infiltration.

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## Function Related Issues

- 1. Because of the anticipated extent of the required renovations is impractical to anticipate the library could remain open during the renovation. Therefore, either the library would need to close during construction or relocate to temporary quarters; possible to a storefront along 25<sup>th</sup> street.
- 2. The current physical relationship between Technical Processing and Cataloging is not in optimal condition. Staff must truck books between the first and second floors between departments for processing and cataloging. The elevator is not reliable and has failed in the past causing the staff to form a human chain transferring books between floors in order to keep up with the workload. Relocation of the departments to a single floor, directly adjacent to each other, would be optimal.
- 3. Provision of a dock high truck dock is necessary for proper loading and unloading of materials for Technical Processing.
- 4. The existing circulation and reference desks are not centrally located for public access and staff monitoring of the library.
- 5. It appears there may be some remaining asbestos issues that will need to be resolved before a renovation can progress. Some of the piping insulation in the basement may contain asbestos. The Owner is encouraged to retain the services of an asbestos specialist to verify the existence and removal of any asbestos present.
- 6. Relocation of the main entrance to the west side of the building is a consideration.

The attached structural, mechanical, and electrical sections provide information pertaining to each discipline's specialty with respect to the condition of the existing structure and the code issues related to each. Review these reports in conjunction with this observation report to form an overall perspective of the building.

Prepared by: davis design group, I.I.c.

James M. Davis, AIA



Capitol Hill Library Needs Assessment Survey Site Visit Observations 26 October 2004 ddg Job No. 0432.00 page 3 of 12 Davis Design Group, LLC 2500 S Broadway Suite 128 Edmond, OK 73013-4039

RE: Capitol Hill Library, 334 SW 26, Oklahoma City, OK Structural Assessment Engineering Solutions Project # 2004-293

23 September 2004

Gentlemen:

#### INTRODUCTION

At your request, on Wednesday 22 September 2004 we visited the above-referenced building to develop a structural assessment of its existing condition and make general recommendations regarding future use of this structure and related analysis requirements.

#### LIMITATIONS

This report is intended for the express use of our client. Our assessment is based solely on visual observations of readily accessible areas and is limited to the condition of the structure at the time of our visit. Our assessment does not include any opinions based on destructive or invasive testing or consideration of any non-structural systems or components including (but not limited to) electrical, plumbing, HVAC, floor treatment or roofing. Structural engineers do not determine the presence or absence of hazardous substances, molds or contaminants or determine the presence or absence of pests.

#### OVERVIEW

This building is a cast-in-place concrete structure measuring approximately 72' E-W and 114' N-S with an attached garage. The building fronts SW 26<sup>th</sup> Street to the north. For the purposes of this report, it will be described as following:

LIBRARY This is the northernmost part of the building, measuring approximately 72' x 79'. This area is two-story with no basement. The First Floor is on a slab-on-grade, the Second Floor and roof are 9" and 8" (respectively) 2-Way flat slabs. There are no capitols or haunches at the columns. Column spacing is nominally 23' on center.

According to the *original* Architectural Plans, a Reading Room occupied the First Floor and an Auditorium, Children's Reading Room, and Office space occupied the Second Floor.

STACK ROOM This portion is single story over a full basement and is located south of the Library measuring approximately 72' x 32'. The basement is slab-on-grade, the First Floor is a 7" 2-Way flat slab and the roof is a concrete pan joist slab.

This area has not changed in usage. There is mechanical equipment in the basement and stacked library shelves in the Stack Room. Originally, the roof over this area was a "promenade." Currently it is a gravel roof, sealed off from the public. The elevation of this roof is approximately 4 feet higher than the elevation of the Second Floor in the Library.

Capitol Hill Library Needs Assessment Survey Site Visit Observations

26 October 2004 ddg Job No. 0432.00 page 4 of 12 GARAGE The garage is part of the original construction and consists of slab-on-grade with triplewythe clay brick walls, steel bar joists, and metal deck roof framing.

#### **OBSERVATIONS**

Your office has provided us with copies of the original Architectural and Structural plans, dated 01 August 1950. We brought the Structural plans (Sheets S1-S4) with us during our visit and compared them with our observations of the structure. It is our opinion the structure was built according to the information contained in the original structural plans.

This structure appears to have held up very well over the years. We noted occasional shrinkage and temperature cracks in the concrete, but nothing that could be attributed to overstress. The structure appears to have settled quite evenly on its foundations with no signs of differential settlement visible. The mortar joints of the brick veneer are clean and tight with almost no sign of cracking.

There are two large mechanical RTUs on the roof over the Stack Room.

There is a crack in the Second Floor wall at the Library portion where the roof of the Stack Room intersects it. This crack runs the length of the wall and has been patched and painted. According to the Architectural plans, this wall is built integrally with the Stack Room roof. The remainder of the wall above that elevation is clay tile and window.

#### ASSESSMENT

Given that we believe the structure is built according to the original plans, and it is currently in very good structural condition, we conclude that the original floor and roof design loads are valid today. However, without performing a thorough structural analysis, we cannot and do not verify, or certify in any way the load capacity of this structure.

It is prudent to examine the design loads that will be required in any future change of usage for this structure. According to the 2000 International Building Code (IBC) Table 1607.1 different design loads that may be encountered in a future usage of this building are as follows:

Access Floor Systems – Computer use	100 psf
Assembly Area – Lobbies	100 psf
Assembly Area - Movable Seats	100 psf
Library - Reading Rooms	60 psf
Library - Stack Rooms	150 psf
Library –Corridors	80 psf
Office Building –Offices	50 psf
Schools - Class Rooms	40 psf

These design loads do not necessarily reflect what was used in the design of this structure. However, given the tendency for past design codes to be more conservative than the current IBC the magnitudes are very likely to be similar and may be considered for comparison purposes.

The roof over the Stack Room is listed as a "promenade" in the original plans and clearly shows accommodations such as handrails indicating that it was indeed originally designed as a public access area. It is therefore likely that it was designed to accommodate loads in the 80-100 psf range "promenade" closed to public access, it is doubtful if the existing RTUs are cause for any structural concern.

During our visit, an informal discussion with the Mechanical Engineer revealed that he thought it possible any rehabilitation of this building may require additional RTUs on the Library roof. According to the original plans, we believe it would be feasible and relatively simple to build a suitable RTU platform above the existing columns.

> Capitol Hill Library Needs Assessment Survey Site Visit Observations

26 October 2004 ddg Job No. 0432.00 page 5 of 12 In regard to the noted crack in the Second Floor wall at the Library, it is quite possible this crack occurred early in the history of this structure due to differential shrinkage and is not a structural concern. According to our interpretation of the plans, the portion of the wall above the roof of the Stack Room is in fact non-structural. Therefore, no structural remediation is necessary. However, if a cosmetic remediation of the crack is desired, this portion of the wall could be easily removed and replaced as needed.

#### CONCLUSION

We believe it is acceptable for the structure to be used in any way that does not exceed the design loads associated with its original usage without further structural investigation.

Any deviation above the original design usage will require analysis of the plans and existing structure, possibly including testing to determine in-situ concrete and steel strength. It will also be possible that structural modifications to the existing structure would be required to increase the capacity to increased load.

We appreciate the opportunity to provide this assessment to you. If you have any questions or comments or if there is anything else we can do for you, please feel free to call us at your convenience.

Sincerely, ENGINEERING SOLUTIONS, LLC

Erica L. Compton, El Structural Engineer James A. Hoffman, PE Chief Engineer

Enclosure

Capitol Hill Library Needs Assessment Survey Site Visit Observations

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# MECHANICAL SYSTEMS SURVEY By: Tom Fox, P.E.

The Building's primary heating system consist of a boiler located in the basement, and the primary cooling system is made up of multiple direct expansion (DX) condensing units including one larger condenser unit located on the roof. The remote condenser couples to two compressors located in the basement. This system connects to small air-handling units located in closets on the second floor. These two units serve much of the perimeter of the second floor, but not the core interior area. This area use to have a computer room air conditioning unit serving the entire core. The primary heating system consists of a single low pressure boiler to supply heating hot water to heating coils serving each air-handling unit.

# AIR HANDLING SYSTEMS

The existing air handling units are in fair condition although they are at the end of their average service life. Generally, the supply and return air ducts are located above the ceiling. While some outside air may be introduced into the primary air-handling units, the quantity is suspect. In addition, the existing equipment serving the first floor does not meet the minimum requirements for access and service space as outlined in the International Mechanical Code (IMC-2000), Section 306.

Items to be corrected or updated through extensive remodeling, upgrading, and/or additions:

- Air filtration will need to be brought up to current design standards and code requirements. This will lead to the complete replacement of the existing air handling equipment due to the additional static pressure requirements and upgrades to meet building code mandates.
- Controls are old and appear to be in questionable operation compared to today's standards.
- Ventilation air is suspect and is in need of complying with current code mandates.
- The existing air handlers are considered energy-intensive. Current construction guidelines and energy code standards require that the air handling units incorporate some type of air-side economizer cycle or have much higher seasonal energy efficiency ratings (SEER).
- A renovation to the mechanical systems require that the systems conform to the standard for new mechanical systems.
- Current code violations include the following:
  - 1. Ductwork is not sealed or insulated in compliance with IMC.
    - 2. Ventilation is suspect and more than likely much less than modern code mandates.
    - 3. First floor air-handling units do not meet the minimum access or service space clearances.

Capitol Hill Library Needs Assessment Survey Site Visit Observations

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- 4. Missing return air smoke detectors required by IMC ventilation requirements for systems greater than 2000 cfm of air volume.
- 5. The existing toilet rooms are missing exhaust air.

Generally the heating and cooling air-side systems are near the end of their service life and are inefficient to operate compared to today's standards. Some physical building constraints exist which restrict modification and changes. One of these constraints is the amount of space required for installation of new and larger supply ductwork in the existing building ceiling cavity. This may dictate that a supply ductwork system be installed in architectural chases. Another physical constraint has to do with the air handler location in the first floor plenum. The plenum is large, and an access/service platform would allow us to comply with IMC. Reuse of the existing air handlers is not be possible as the units appears to be beyond their economic life and fails to comply with the current minimum standard of care for an HVAC system. A new air handler could be located on the roof, however, structural modifications are likely and routing ductwork down to the first floor may not be possible.

# HEATING HOT WATER SYSTEMS

The heating hot water system is comprised of a single boiler with two in-line circulating pumps. The pumps are piped in a quasi-parallel configuration due to the limited space available. It is assumed that one pump acts as a stand-by pump, but we could not determine this during our observation.

The boiler is similar to the air handling equipment in that it is in fair condition, but at its end of average service life. Modern boilers would provide a significant improvement on energy efficiency. Code violations that would be required to be corrected in a major renovation include but not limited to the following:

- 1. The combustion air appears to be lacking (possibly missing) for the boiler and water heater.
- 2. The gas train vents appear to be vented back to the combustion chamber in lieu of directly piped to the atmosphere.
- 3. A minimum of three feet is required between all sides of the boiler and adjacent walls.
- 4. All boiler rooms containing one or more boilers have a fuel burning capacity of 1,000,000 Btuh are required to have at least two means of exit. The exterior door appeared to be locked such that it couldn't be used as an emergency exit.
- 5. All boiler rooms are required to have a "kill" switch located near the means of egress to shut-down the fuel to the boilers in the event of an emergency.

Capitol Hill Library Needs Assessment Survey Site Visit Observations

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# COOLING SYSTEMS

The existing cooling systems are of different size, age, and type and should be subject to upgrade due to the lack of capacity and flexibility of the equipment

A major renovation to the facility should include the following changes to the existing cooling system:

- Provide new equipment to meet the space duty requirements;
- Designate areas that are to be controlled by a single thermostat; and
- Provide new equipment meeting current energy code requirements;

In general, the existing compressors and condensing units look to be in good condition. The largest problem we noticed is that they are unable to match the building's growing capacity requirements and that has forced the adding of packaged DX equipment to supplement the cooling demands. There are a few packaged DX units located on the roof that are serving areas that have out grown the existing system. Current code violations include, but not limited to the following:

- 1. inadequate filter efficiencies for area(s) served;
- inadequate outside air ventilation and some units have no outside air ventilation is provided to the equipment;
- 3. low efficiency equipment;
- 4. missing some type of air side economizer; and
- 5. no direct means of controlling humidity.

A few modern considerations to address in the design of the new systems include regulating temperature and humidity, as well as space pressurization, filtration of the supplied air, allowable recirculation of the air, and the effectiveness of the delivery of the air. All of these requirements appear to be out of conformance with today's standard of care for construction standards.

# PLUMBING SYSTEMS

The domestic water heater appear to fairly new and are in good condition. The installations of the water heaters do not allow sufficient room to maintain the boiler located next to it or replace a the heater without shutting down the hot water system. In addition, there are no provisions to limit the amount of Legionella bacteria and other opportunistic waterborne pathogens. Major items that are required to be brought up to current design standards include the following:

- Water temperatures in the storage tanks need to be increased to 140°F to limit legionella bacteria;
- verify that the hot-water distribution systems serving public areas are under constant recirculation to limit bacteria growth;
- 3. provide anti-scald valve(s) at the water heaters;

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- 4. correct any existing combustion air deficiencies found;
- 5. provide point-of-use backflow prevention for equipment where required and;
- 6. provide an expansion tank to relieve the excess pressure build-up.

Generally the plumbing systems are in fair to good working condition. There are areas of the facility that use the original waste and vent piping and these should be replaced due to their age and risk of failure. Some physical building constraints exist which restrict modification and changes. One of these constraints is the amount of space required for coordination of plumbing with the installation of new and larger supply ductwork in the existing building ceiling cavity. Another physical constraint has to do with that much of the plumbing piping is concealed and would require significant amount of demolition to replace.

# FIRE PROTECTION SYSTEMS

The existing fire protection system is in questionable working order. Much of the building is not sprinkled and this includes many of the areas with the highest hazard classification (mechanical and boiler rooms). It would be very difficult to provide complete protection of the facility due to the existing physical constraints. If a fire occurs in the building, it will be very costly in physical damage and occupant safety would be in jeopardy.

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# CAPITOL HILL LIBRARY

# ELECTRICAL SYSTEMS SURVEY By: Mark Tatarian, P.E.

The electrical and communications systems for libraries should be efficient and easy to maintain.

The National Electric Code (NEC) was created over 100 years ago to protect people and facilities from the hazards associated with electricity. The great Chicago Fire of 1895 was the basis for the creation of the NEC. The code is updated every three years. The next available updated code will be the 2005 NEC. New and improved electrical practices are discovered and implemented into each new version of the NEC.

**Services.** The facility currently has a 120/240-volt, 3-phase, 4-wire high leg delta electrical service from pole-mounted transformers located southwest of the building. Some of the switchgear is a product of Frank Adams Company, a company that has been out of business for many, many years. This can make it very difficult to obtain replacement parts. Although the main service was "upgraded" **20** years ago with a GE main service board, switchgear components (circuit breakers, lugs, bussing, etc.) degrade over time due to the constant expansions and contractions on the connections associated with electrical loads being energized within a facility. These connections can even become loose over time, causing arcing, which could lead to a short circuit, and possibly an electrical fire!

It is <u>highly</u> recommended that a new electrical service and associated branch circuit panelboards be installed in this facility.

An additional suggestion would be to determine (with OG & E) if the facility could be converted to a 208Y/120-volt, 3-phase, 4-wire service. This would be the system of choice for this facility. This will create a balanced, more efficient system since the existing system (120/240-volt, 3-phase, 4-wire) has a "high" leg where no 120-volt circuits can be connected. This "high" leg creates an unbalanced system since only two the three phases can accommodate 120-volt circuits.

**Receptacles.** The receptacles were not Ground Fault Circuit Interrupter (GFCI) protected as required by the NEC. This can pose a serious potential shock hazard to personnel and patrons. New GFCI receptacles should be installed where required and recommended as good design practice.

**Lighting.** The fluorescent lighting is comprised of T12 fluorescent lamps; an outdated and less energy efficient source compared to today's standards. Many of the T12 lamps have been discontinued due to the Energy Policy Act of 1992. To upgrade the lighting to the current standards of today would require not only replacing the lamps, but

Capitol Hill Library Needs Assessment Survey Site Visit Observations 26 October 2004 ddg Job No. 0432.00 page 11 of 12 the ballasts as well. Ballast replacements can be labor intensive. A better recommendation would be to install new energy efficient fixtures.

Americans with Disabilities Act (ADA). The light switches and receptacles are not installed at the heights required to be in compliance with ADA.

**Exit/Emergency Egress Lighting.** The circuit associated with the emergency lighting is connected ahead of the main service; a common practice years ago, but now a code violation. During the observation, we did not locate any emergency battery powered light fixtures. These fixtures are required to light all paths of egress to comply with the *Life Safety Code*.

**Elevator and Associated Equipment.** The elevator and associated equipment is very antiquated, and very likely to be out of compliance with NEC Article 620 (Elevators, Dumbwaiters, Escalators, Moving Walks, Wheelchair Lifts, and Stairway Chair Lifts).

**Fire Alarm.** It appears that the facility had a fire alarm system installed when the upstairs computer room was added. The fire alarm system, as installed, does not meet all of the standard code requirements of today, particularly ADA requirements. An upgrade and/or new system installation would be required.

**Conclusion.** Generally, the electrical system and associated components are near or at the end of service life, and are inefficient to operate and maintain compared to today's products and standards. The electrical components needed to comply with these requirements should be provided to bring the facility up to compliance with current electrical codes.



Capitol Hill Library Needs Assessment Survey Site Visit Observations

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# MLS Total Materials Budget 26 year history



## Schedule of Cash Reserve

	2001-02 Approved	2002-03 Approved	2003-04 Approved	2004-05 Approved
Beginning Balance	\$9,600,874	\$9,379,798	\$9,214,771	\$10,252,348
Annual Contribution: Increase or (Decrease)	(221,076)	(165,027)	1,037,577	610,633
Ending Balance	\$9,379,798	\$9,214,771	\$10,252,348	\$10,862,981
Allocation of Reserves:				
Reserve for Cash flow	1,900,000	2,052,000	2,416,160	2,900,000
Reserve for Insurance Fund	100,000			
Reserve for Extra Payday	90,000	141,273	191,601	250,000
Capital Improvement Projects:				
Approved by the Commission: Drexel Portable Building DN Library/Learning Center F/F/F & A V Equipment	52,400	52,400		
Other Related Projects Opening Collections Additional funding 10/01 Choctaw New Facility	565,000 350,000 500,000 86,750	150,000		
Capitol Hill Library Ralph Ellison Library New Northwest Library Southern Oaks Library	205,332 424,930 3,551,527 717,363	205,332 424,930 3,551,527 717,363	205,332 424,930 3,551,527 736,363	3,551,527 736,363
Future Capital Improvements	836,496	1,919,946	2,726,435	3,425,091
Total Reserves	\$9,379,798	\$9,214,771	\$10,252,348	\$10,862,981

3-8

# Metropolitan Library System FY05 Budget

450 Capital projects						
For	By	Priority	App.	Description	Qty	Amount
MTC	MTC	Required	Y	HVAC monitoring systemcarryover Sub-Total Maintenance	1	50,000.00 <b>50,000.00</b>
DN	BUS BUS	Required Required	Y Y	FY 02-03 PO's deleted-add to FY05 FY 04 cancelled items-add to FY05 Sub-Total Downtown	1 1	320,658.00 989,000.00 <b>1,309,658.00</b>
BI	MTC MTC MTC	Required Required Required	Y Y Y	Boiler replacementcarryover Rooftop condenser unitcarryover Electrical service replacementcarryover Sub-Total Belle Isle	1 1 1	36,000.00 25,000.00 6,000.00 <b>67,000.00</b>
BE	BUS	Required	Y	Window replacementcarryover Sub-Total Bethany	1	12,000.00 <b>12,000.00</b>
СН	BUS BUS	Required Required	Y Y	Re-wiring of data networkcarryover OKC Capital Improvement Project Sub-Total Capitol Hill	1 1	23,650.00 205,332.00 <b>228,982.00</b>
DC	BUS	Required	Y	Re-wiring of data networkcarryover Sub-Total Del City	1	15,600.00 <b>15,600.00</b>
MC	MTC MTC MTC	Required Required Required	Y Y Y	Paint interior & clean ceiling tilecarryover Floor repaircarryover New carpetcarryover Sub-Total Midwest City	1 1 1	20,000.00 50,000.00 95,000.00 <b>165,000.00</b>
RE	BUS BUS BUS	Required Required Required	Y Y Y	Re-wiring of data networkcarryover Floor trenching for re-wiring OKC Capital Improvement Project Sub-Total Ralph Ellison	1 1 1	15,900.00 4,000.00 424,930.00 <b>444,830.00</b>
VI	BUS BUS	Required Required	Y Y	Re-wiring of data networkcarryover Repair <del>circulation</del> desk Sub-Total Village Library	1 1	16,200.00 22,000.00 <b>38,200.00</b>
WA	WA WA WA	Required Required Required Required	Y Y Y	Door, frontnew mechanicals, sensors etc. Trench concrete floor for computer wirecarryover Restroomcarryover Architectural service for restroom remodel <b>Sub-Total Warr Acres</b>	1 1 1	12,500.00 4,000.00 100,000.00 10,000.00 <b>126,500.00</b>
SYS	MTC BUS BUS	Required Required Required	Y Y Y	Update fire alarm for BI, SO & REcarryover Addition of wireless, filtered internet Enhance paging systems Sub-Total System	1 1 1	50,000.00 60,000.00 10,000.00 <b>120,000.00</b>
				Account Total		2,577,770.00
				Grand Total	;	24,473,874.00

Thursday, August 12, 2004 at 01:44 pm Pgm: All GL: All Need: Required Appr: Yes

	1	Metropolitan Li	brary System 10/26/04	
Cash Reserves:			Additional funds in account 450 in the 04-05 Bud	get:
Approved by the Commission:				
Ralph Ellison Library			Ralph Ellison - Re-wiring of data network	15,900
			Ralph Ellison - Floor trenching for re-wiring	4,000
		1 1000 0000	Ralph Ellison - OKC Capital Improvement	424,930
New Northwest Library		3,551,527		
Southern Oaks Library		736,363		
Future Capital Improvements:				
Bethany Addition/Renovation	442,957		Bethany - Window Replacement	12,000
Capitol Hill Addition/Renovation	326,110		Capitol Hill - Re-wiring of data network	23,650
			Capitol Hill - OKC Capital Improvement	205,332
Del City Addition/Renovation	464,715		Del City - Re-wiring of data network	15,600
Warr Acres Addition/Renovation	426,522		Warr Acres - Front Door mechanicals	12,500
			Warr Acres - Floor trenching for re-wiring	4,000
			Warr Acres - Restroom	100,000
			Warr Acres - Architect for restroom	10,000
Midwest City Renovation	401,040		Midwest City - Paint interior and clean ceiling	20,000
	0.0000000000000000000000000000000000000		Midwest City - Floor Repair	50,000
			Midwest City - New Carpet	95,000
Village Addition/Renovation	491,481		Village - Re-wiring of data network	16,200
Downtown Building	170,000		0	
Other Locations Additions/Renovations	702,266	3,425,091		
			Other Locations in the 04-05 Budget:	
			Maintenance - HVAC monitoring system	50,000
		07 710 001	System - Update fire alarm for BI, SO, & RE	50,000
Total	1 =	\$7,712,981		

# Summary Funding Schedule of OF

	OKC Costs
Project	on Ballot
NEW NW Lib	6,600,000
Ralph Ellison	840,000
Capital Hill	320,000
Southern Oaks	1,840,000
Bond Issue Exp.	200,000
Total	9,800,000