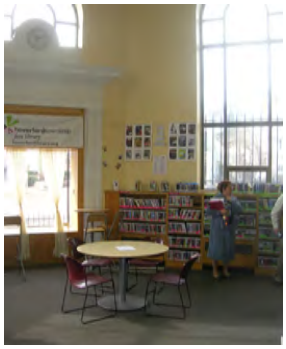
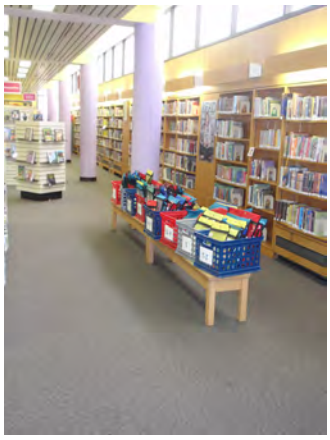




Space Utilization Study

prepared for

Haverford Township Free Library

August 20, 2013

CASACCIO
ARCHITECTS
YU
Mission Driven Design™

Table of Contents

Preface A
- Architectural Assessment Summary
- MEP Assessment Summary

Existing Condition Plans ..... B

Preliminary Schematic Plans C
- Original Drawings dated March 20, 2013
- Revised Drawings dated July 23, 2013

Final Schematic Plans & Section ..... D

Final Presentation ..... E

Budget ..... F

Sustainable Design Strategies ..... G

Appendix ..... APPENDIX

Preface ..... A

Preface

PARTICIPANTS
Christine Faris, Library Director
Christopher Blackwall, President, Library Board of Trustees
Jeffrey Miller, Building Committee Member
Rich Caesar, Building Committee Member

VISION
We envision our library as a dynamic community hub for life-long learning, creativity, and culture now and into the future.

MISSION
The mission of the Haverford Township Free Library is to provide residents of the Township of Haverford, as well as the public at large, with exemplary access to the broadest possible range of resources, programs and services that enhance and enrich their lives.

The GOALS of the Haverford Township Free Library are to

- Increase community involvement in the Library
- Situate the Library as an active, vital community hub
- Improve availability and access to quality materials and services
- Ensure that the library building/facilities fully support the mission and reflect community goals and needs

In January of 2013, Casaccio Yu Architects was retained to provide a building assessment of the existing library and provide conceptual design options for the future use of the library. Over the next 2 months, the architects reviewed the existing facility and met with the library consultant, Bill Wilson from Himmell and Wilson, and various library constituents to review current/future program needs, building deficiencies and functional requirements.

Through several interactive workshops, several operational deficiencies became apparent including staffing inefficiencies due to locations of workspaces, visibility from circulation desk and vertical circulation through the library. Also through these workshops, it was learned that many of the libraries building systems were in need of updating including availability of electrical outlets, energy efficient lighting, climate control and ADA access.

ARCHITECTURAL ASSESSMENT SUMMARY
The following is a summary of internal, programmatic deficiencies which challenge the libraries staff during daily operations:

- Operation of front entry door – proximity to circulation desk allows children to wander out while parents are checking out material.
- Location of the elevator requires users to navigate through library to gain access to upper and lower floors.
- Elevator cab size does not accommodate parents with strollers – Children's library is on the second floor.
- Lack of on-site parking
- Meeting spaces, size and amenities, limits the programs that can be held.
- Arrangement of power limits the portability of computers throughout the library.
- Visual access throughout the library is an issue.
- There is no visual access to the teen area.
- Staff offices and workspaces are randomly placed throughout the plan.
- 3 levels present a staffing problem. All floors need to be monitored while occupied.

Building Deficiencies:

- Toilet rooms are not ADA compliant.
- Elevator is not adequately sized or configured for ADA compliance.
- Drafty, leaking, single pane window assemblies at light monitor and various areas throughout library.
- Extensive sealant applied around window panes, frames and flashings – Reports of previous leaks.
- Several areas of sealant applied at metal wall panels. Reports of previous leaks.
- Minimal thermal resistance in existing wall construction.
- Aisle widths at stacks are the minimum 36" in width; 42" recommended.
- Stationary furniture and equipment limits flexibility of open spaces.
- Lack of privacy at Reference Librarian work station.
- Several interior finishes appear worn and are in need of updating.
- Outdated linear metal ceilings
- Water stained window sills
- Sign of water infiltration in Basement Mechanical Room - Wet floor observed.
- Minimal parking capacity. End of the lot is a dead-end, creating a difficult condition to turn around.

MECHANICAL, ELECTRICAL AND PLUMBING ASSESSMENT SUMMARY
(See full Mechanical, Electrical and Plumbing Assessment, prepared by McHugh Engineering in the Appendix)

MEP Deficiencies:

Mechanical, Electrical and Plumbing Systems

- Most systems are 30+ years old
- Systems are degraded and inefficient
- Most systems are at the end or beyond their useful life

Mechanical Systems

Boiler

- Oil fired – single unit
- In the event of unit failure, redundancy does not exist to allow building to be tempered while service is repaired.

Heating system

- Hot water fin-tube (damaged)
- Hot water coils in HVAC units

Ventilation and Air Conditioning

- 3 Existing air handlers
- A/C chiller in basement
- Cooling tower on roof

Plumbing Systems

- Existing fixtures not ADA
- High water usage
- Water heater is older, not energy efficient

Electrical Systems

- Insufficient outlets throughout library
- Electric panels no longer manufactured – replacement parts not available.
- Electric panels are full – additional capacity not possible.
- Some lighting is controlled through the electric panels by turning breakers on/off.
- Inefficient T12 and incandescent lighting

Preface

Proposed Mechanical, Electrical and Plumbing System Updates:

Mechanical Systems

Boiler

- New gas fired - 2 Units for redundancy
- Gas service will need to be introduced to the building.

Proposed Mechanical, Electrical and Plumbing System Updates (continued):

Heating system

- Replace all damaged hot water fin-tube – This will improve performance.

Ventilation and Air Conditioning

- Replace air handlers in basement and second floor
- Replace A/C chiller in basement
- Replace cooling tower on roof

Controls

- Add control systems for control of individual spaces and exposures within open spaces
- Allow systems to adjust to heating and cooling demands.

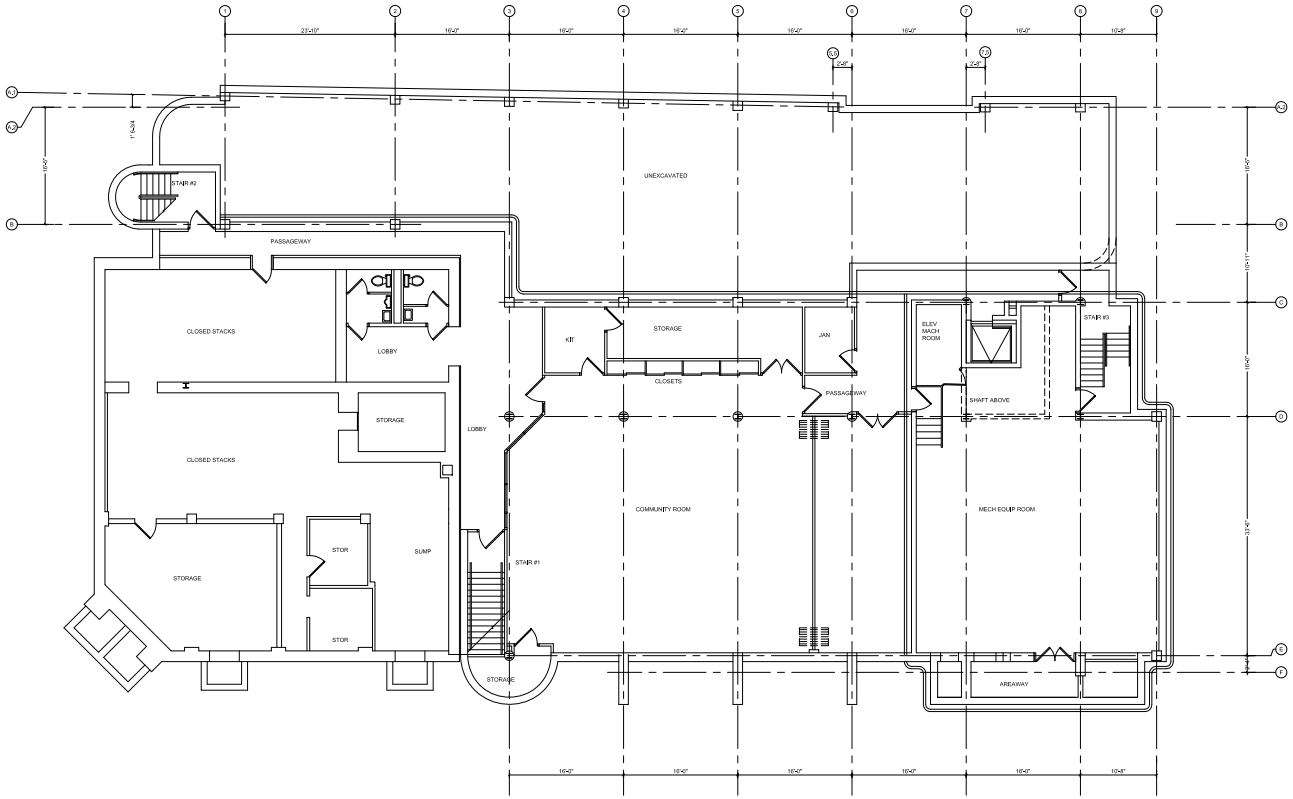
Plumbing Systems

- Replace fixtures with fixtures that have water saving features – dual flush, low flow
- Energy efficient gas fired water heaters.
- Recirculating hot water systems – minimizes the need to reheat water.
- Insulate piping – save heat loss.

Electrical Systems

- Existing service may be acceptable – further testing is required to verify.
- Replace all electric panels –this will provide added capacity.
- Utilize energy efficient lighting throughout.
- Add lighting controls to monitor occupancy of spaces and improve energy efficiency.

Existing Condition Plans ..... B



1 / A1.0 BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

CASACCIO ARCHITECTS
YU
Mission Driven Design
1950 LAWRENCE ROAD
HAVERTOWN, PA 19083
610. 789.1604
FAX: 610. 789.1627
info@casaccio-yu.com
CONTACT: KEVIN WHITNEY

RENOVATIONS TO
HAVERFORD TOWNSHIP FREE LIBRARY
1601 DARBY ROAD, HAVERTOWN
HAVERFORD TOWNSHIP, DELAWARE COUNTY, PA, 19083

© Casaccio Yu Architects 2013

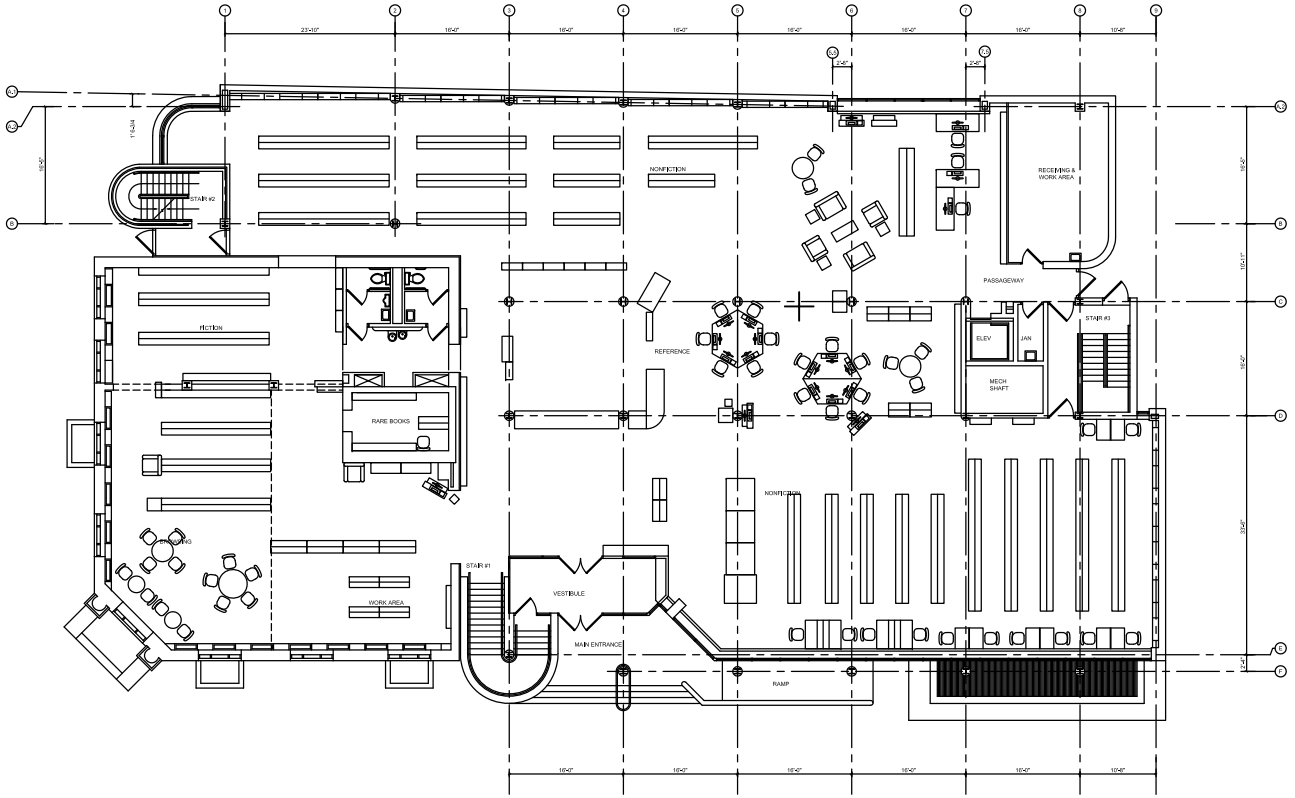
No	Date	Description
Revisions		

All dimensions & measurements shall be checked and verified by the contractor at the site.

Sheet Title
BASEMENT FLOOR PLAN

Project No.	13001
Scale	1/8" = 1'-0"
Date	xx/xx/13
Drawn by	XXX
Checked	XXX

Drawing No.
A1.0



1 / A1.1 FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

CASACCIO ARCHITECTS YU
Mission Driven Design
1950 LAWRENCE ROAD
HAVERTOWN, PA 19083
610. 789.1604
FAX. 610. 789.1627
info@casaccio-yu.com
CONTACT: KEVIN WHITNEY

RENOVATIONS TO
HAVERFORD TOWNSHIP FREE LIBRARY
1601 DARBY ROAD, HAVERTOWN
HAVERFORD TOWNSHIP, DELAWARE COUNTY, PA, 19083

© Casaccio Yu Architects 2013

No	Date	Description

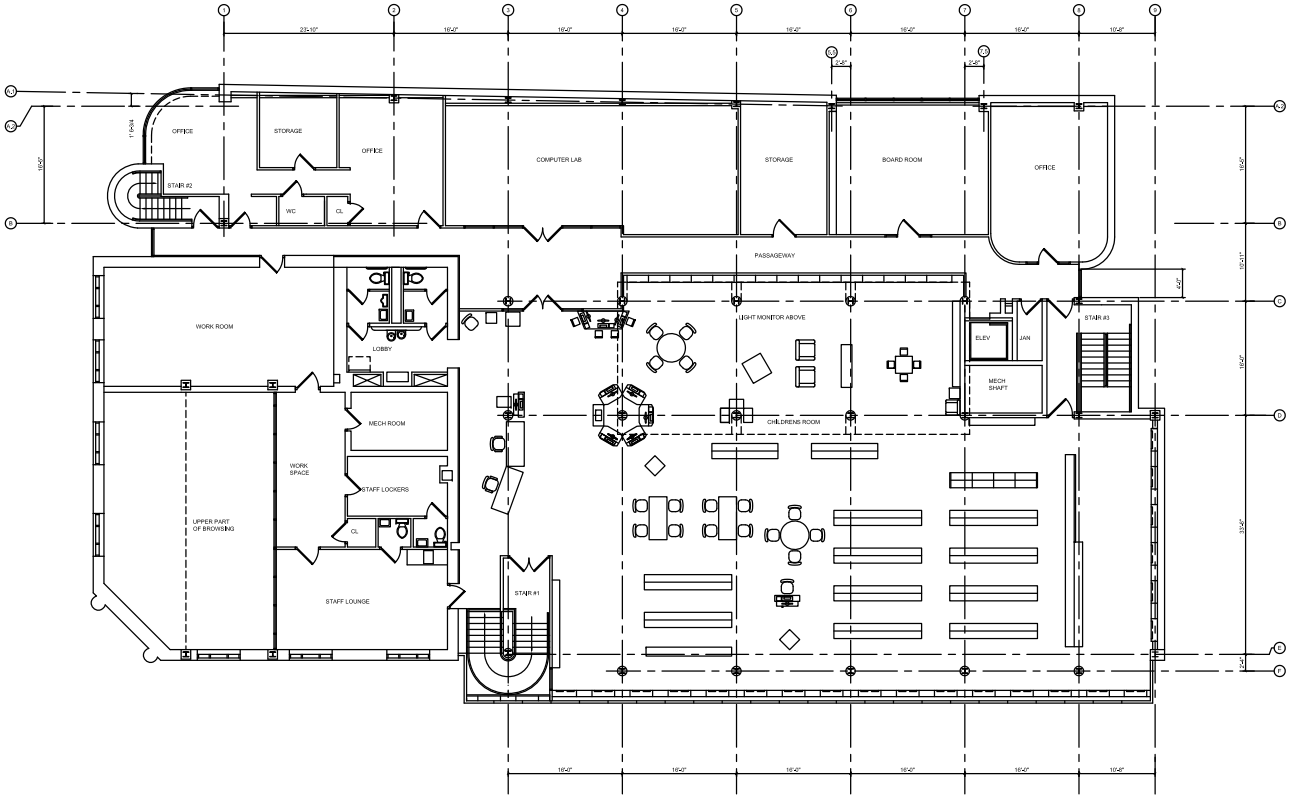
Revisions

All dimensions & measurements shall be checked and verified by the contractor at the site.

Sheet Title
FIRST FLOOR PLAN

Project No.	13001
Scale	1/8" = 1'-0"
Date	xx/xx/13
Drawn by	XXX
Checked	XXX

Drawing No.
A1.1



1 / A1.2 SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

CASACCIO ARCHITECTS YU
Mission Driven Design
1050 LAWRENCE ROAD
HAVERTOWN, PA 19083
610. 789.1604
FAX: 610. 789.1627
info@casaccio-yu.com
CONTACT: KEVIN WHITNEY

RENOVATIONS TO
HAVERFORD TOWNSHIP FREE LIBRARY
1601 DARBY ROAD, HAVERTOWN
HAVERFORD TOWNSHIP, DELAWARE COUNTY, PA, 19083

© Casaccio Yu Architects 2013

No	Date	Description

Revisions

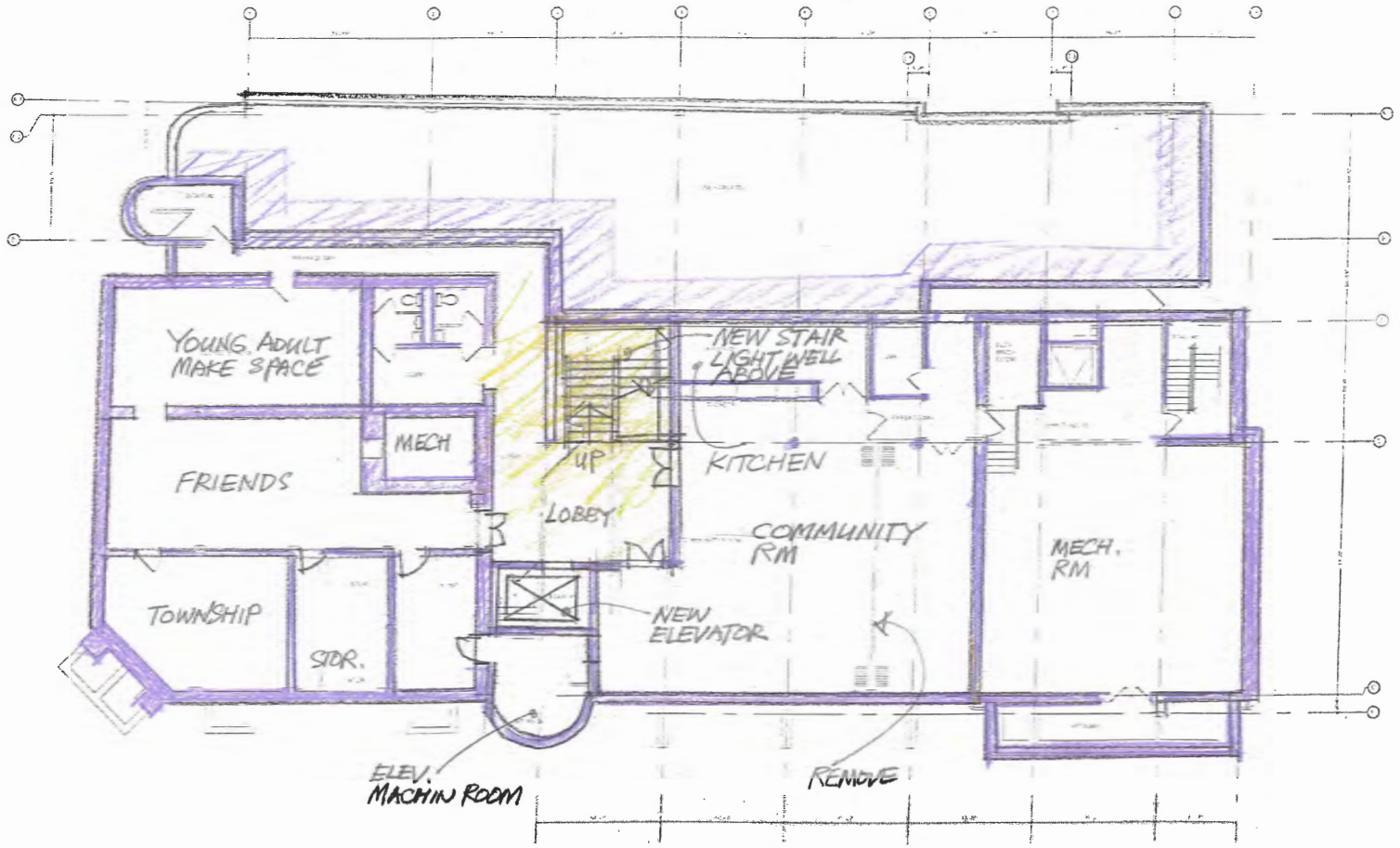
All dimensions & measurements shall be checked and verified by the contractor at the site.

Sheet Title
SECOND FLOOR PLAN

Project No.	13001
Scale	1/8" = 1'-0"
Date	xx/xx/13
Drawn by	XXX
Checked	XXX

Drawing No.
A1.2

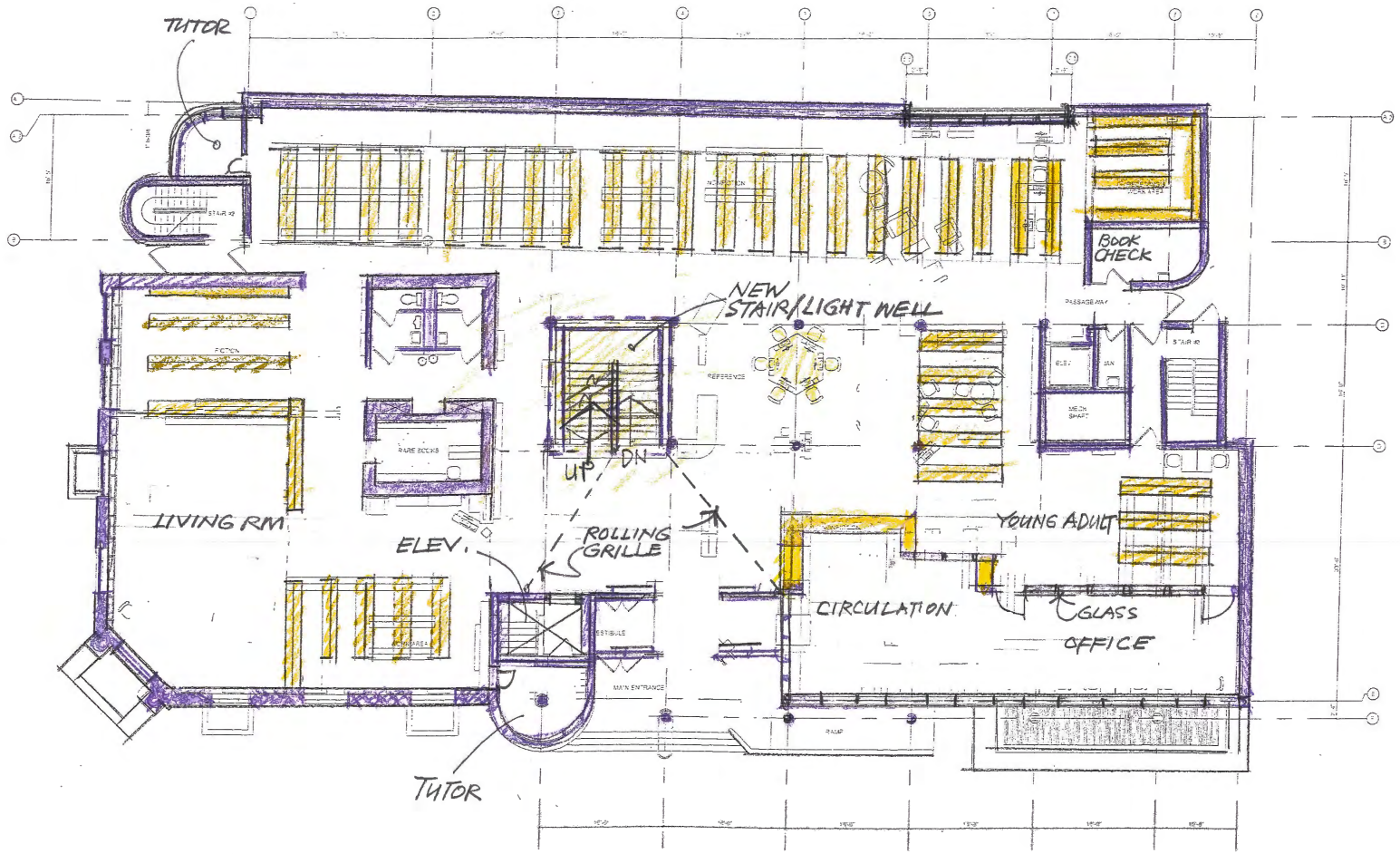
Preliminary Schematic Plans C



Lower Level

0 8 16 32

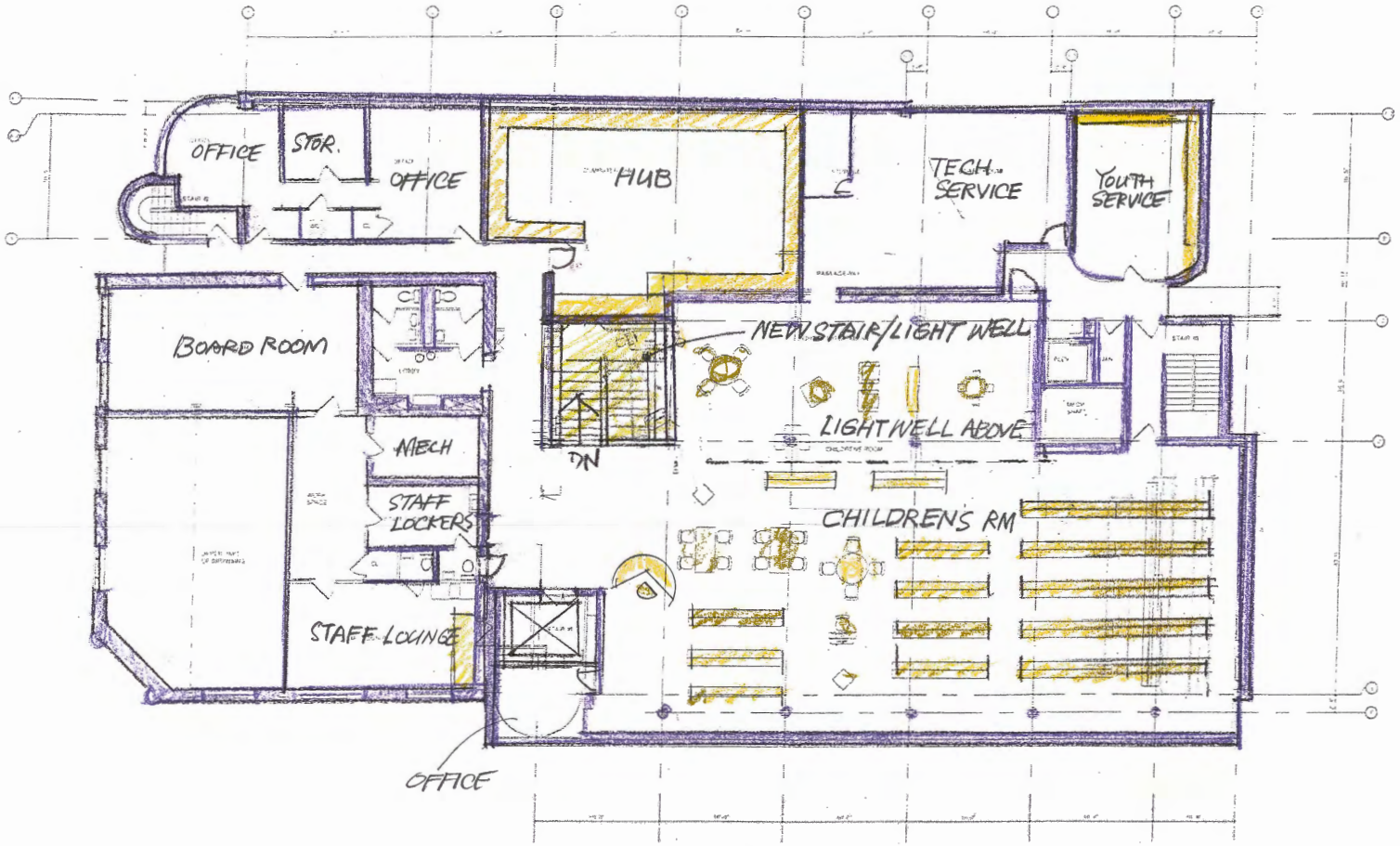
SCHEME A



1ST FLOOR

0 8 16 32

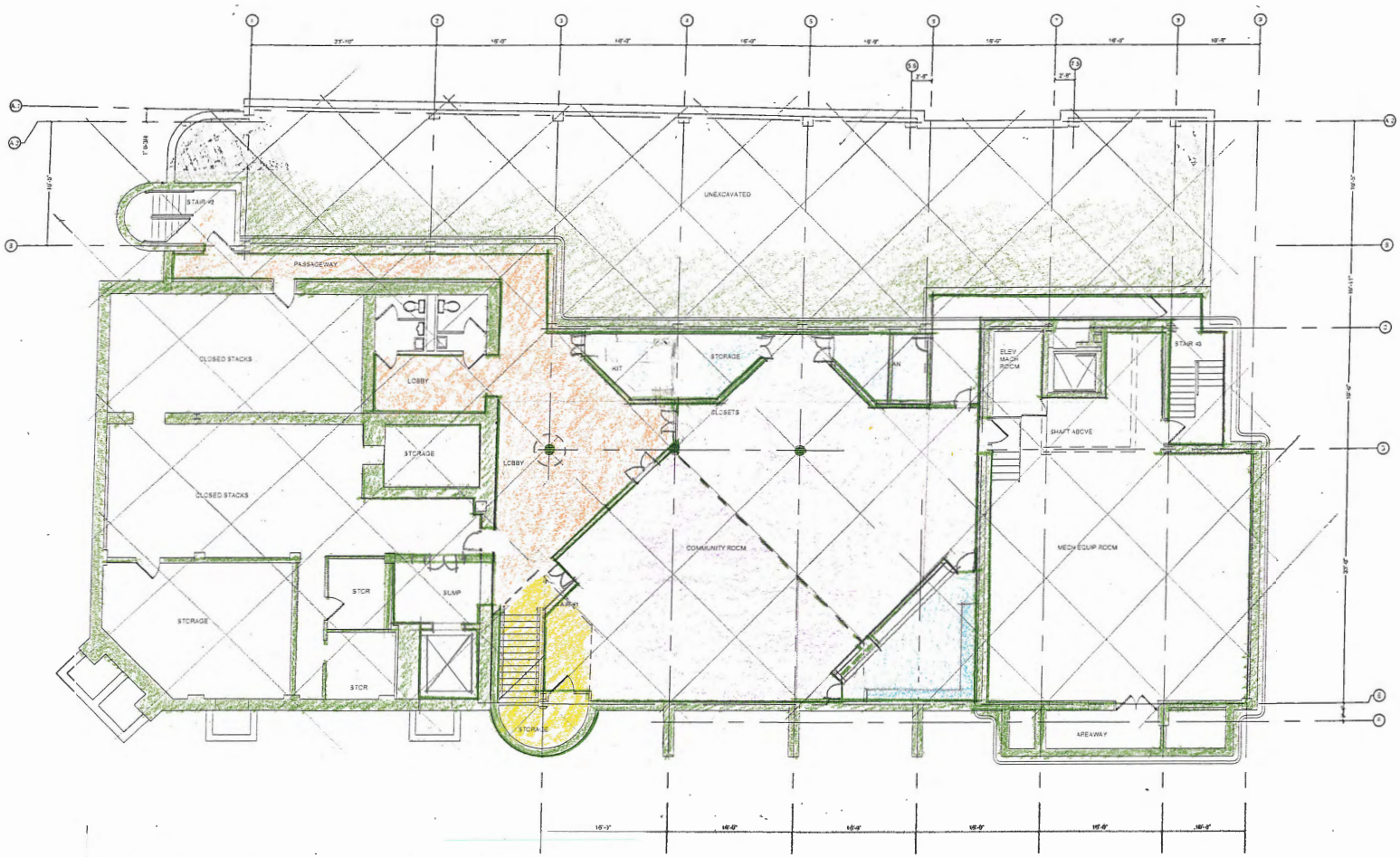
SCHEME A



2nd Floor

0 8 16 32

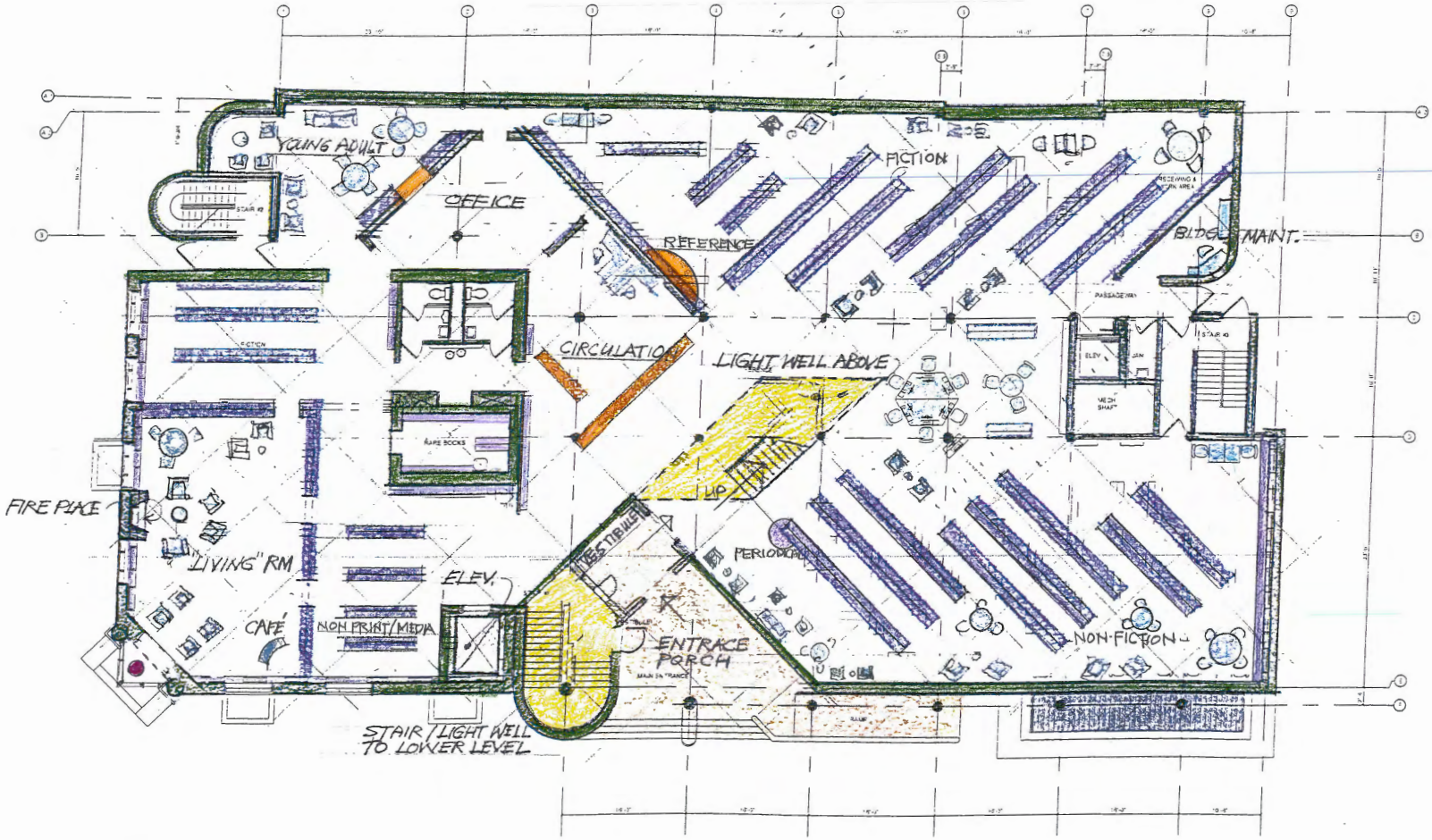
SCHEME A



HAVERFORD TOWNSHIP FREE LIBRARY
CONCEPTUAL LOWER LEVEL FLOOR PLAN
MARCH 6, 2013

SCALE: 0 8 16 32

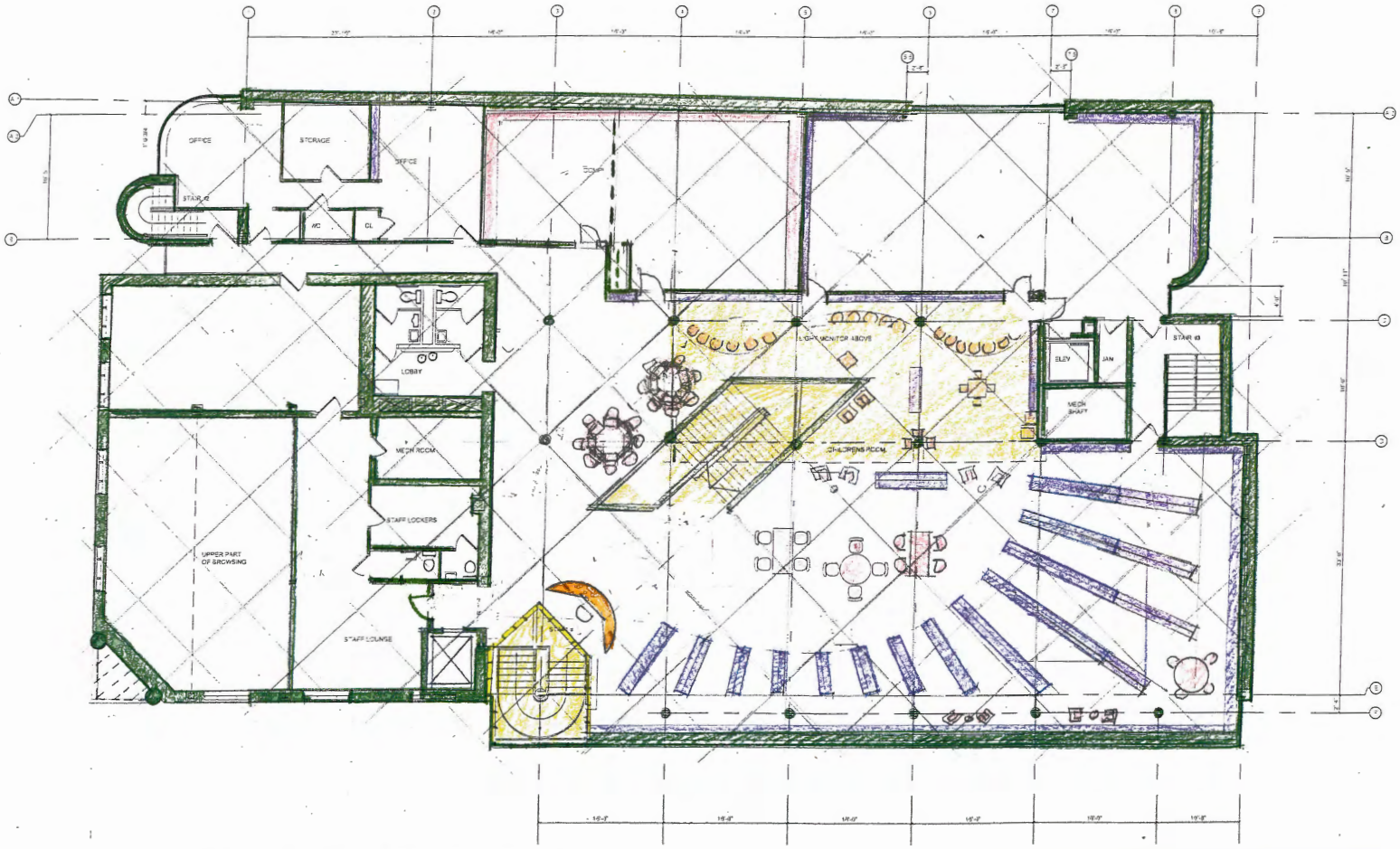
SCHEME B



HAVERFORD TOWNSHIP FREE LIBRARY
CONCEPTUAL FIRST FLOOR PLAN TOTAL SINGLE STACK LENGTH: ±- 960'
MARCH 6, 2013

SCALE: 0 8 16 32

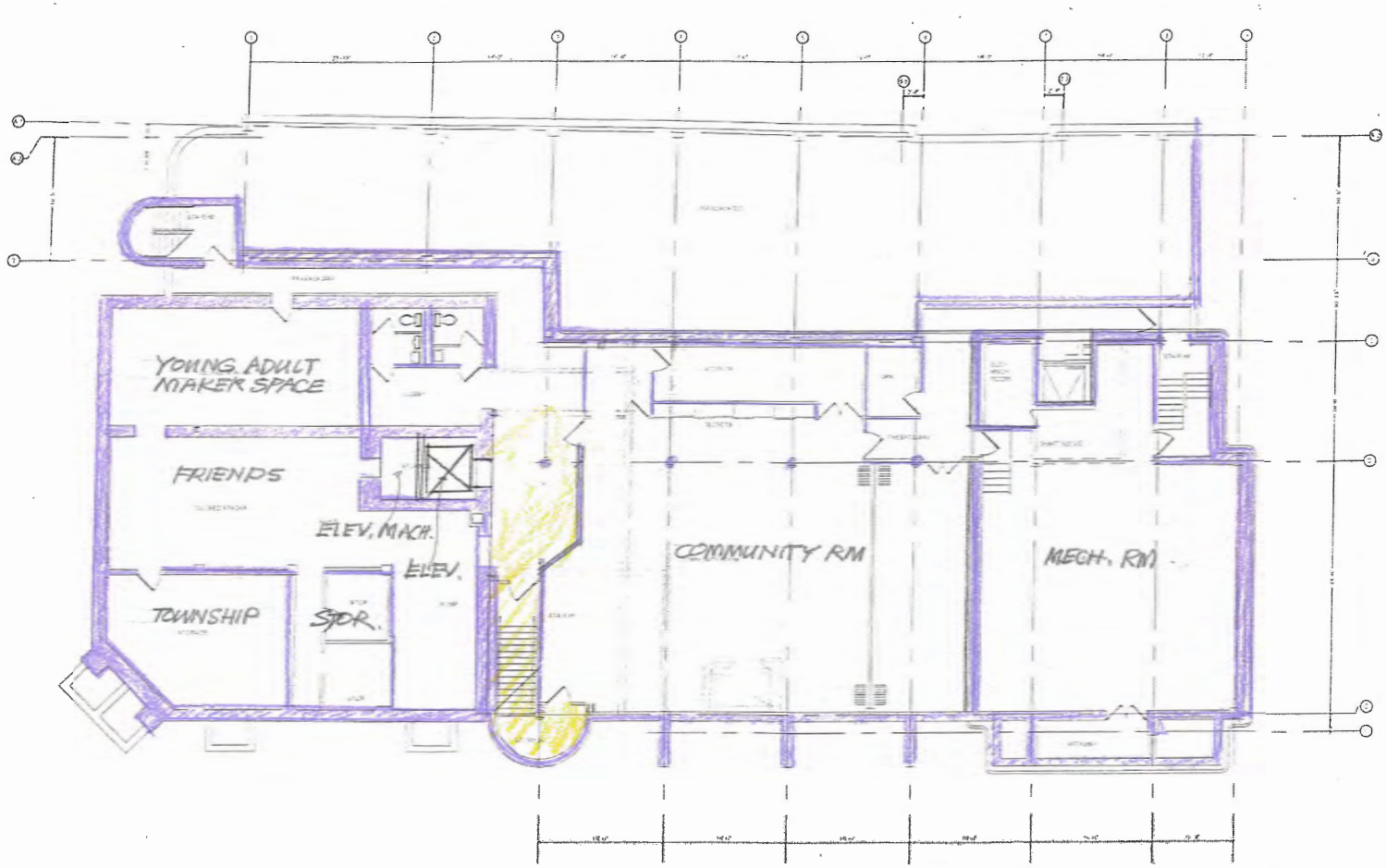
SCHEME B



HAVERFORD TOWNSHIP FREE LIBRARY
CONCEPTUAL SECOND FLOOR PLAN
MARCH 6, 2013

SCALE: 0 8 16 32

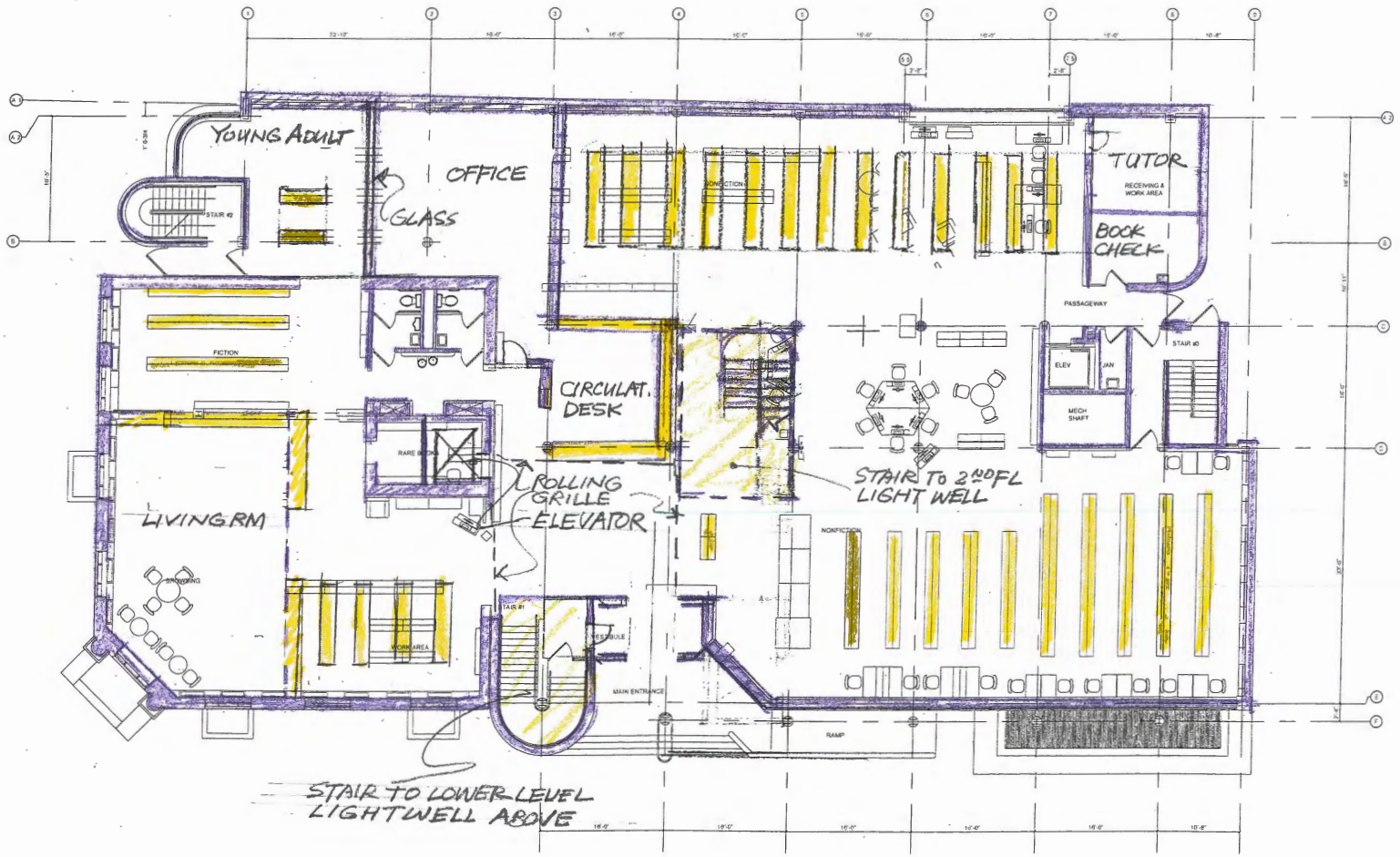
SCHEME B



Lower LEVEL

0 8 16 32

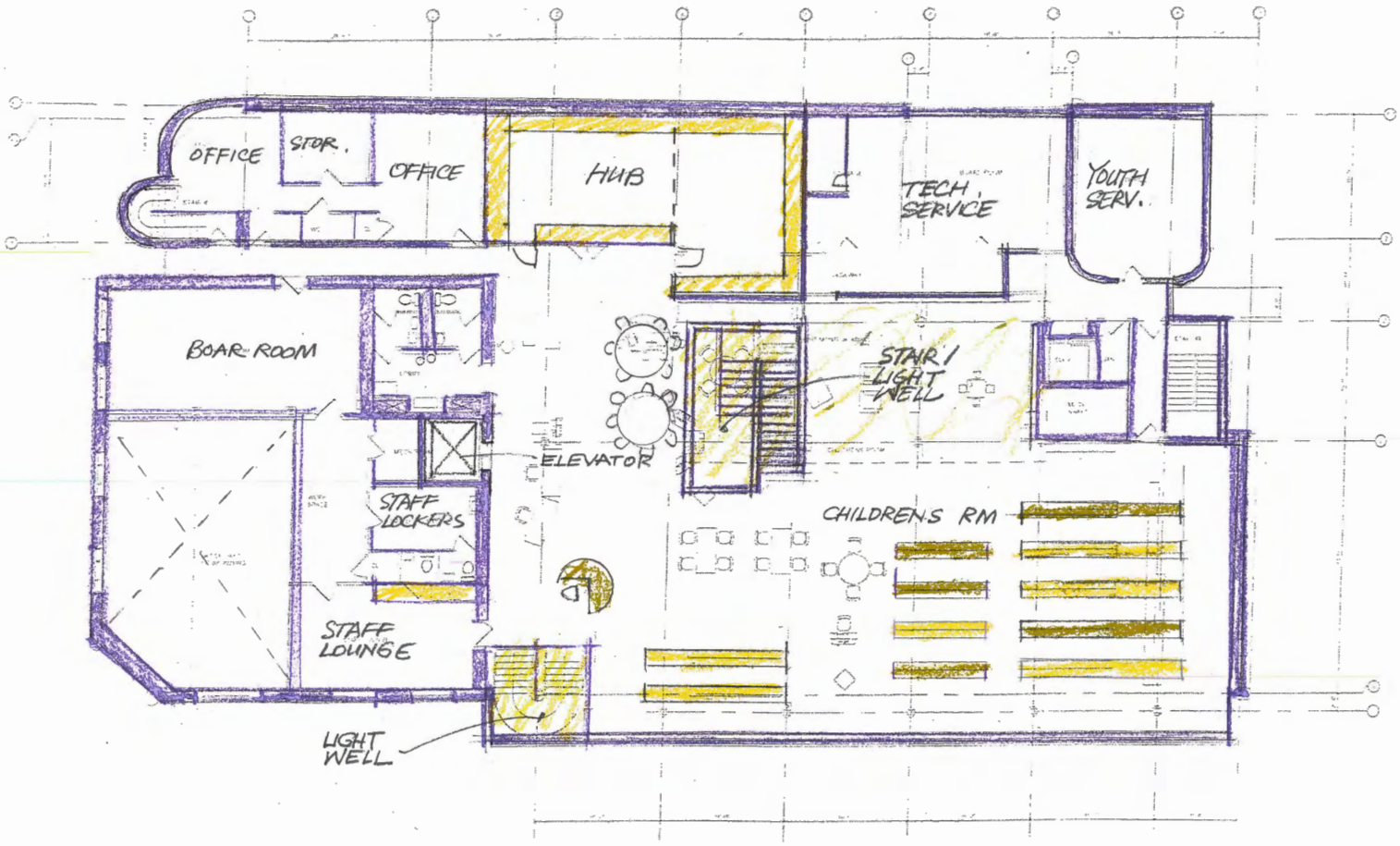
SCHEME C



1ST FLOOR

0 8 16 32

SCHEME C

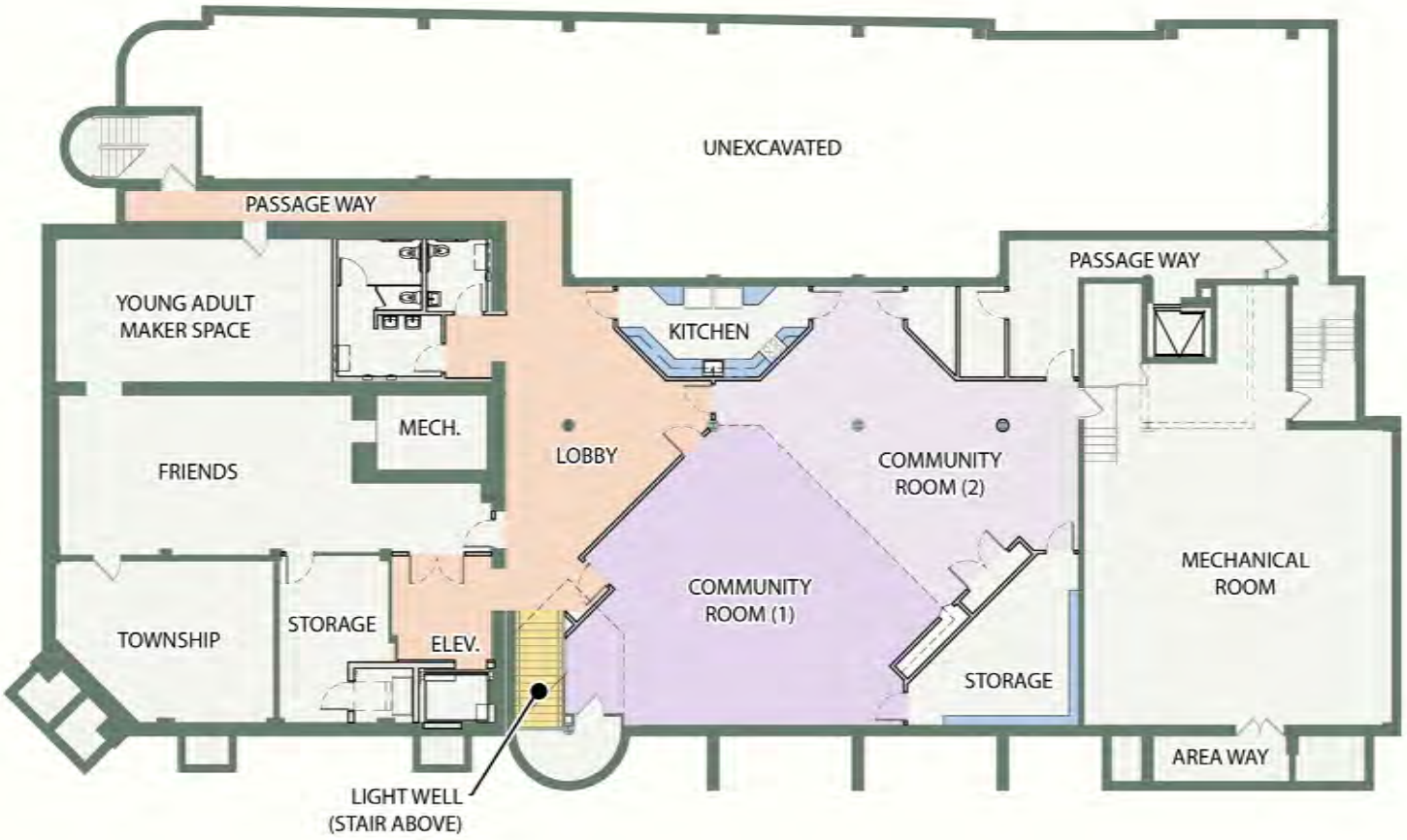


2nd Floor

SCHEME C

Final Schematic Plans and Section..... D

Original Drawings dated March 20, 2013
Revised Drawings dated July 23, 2013



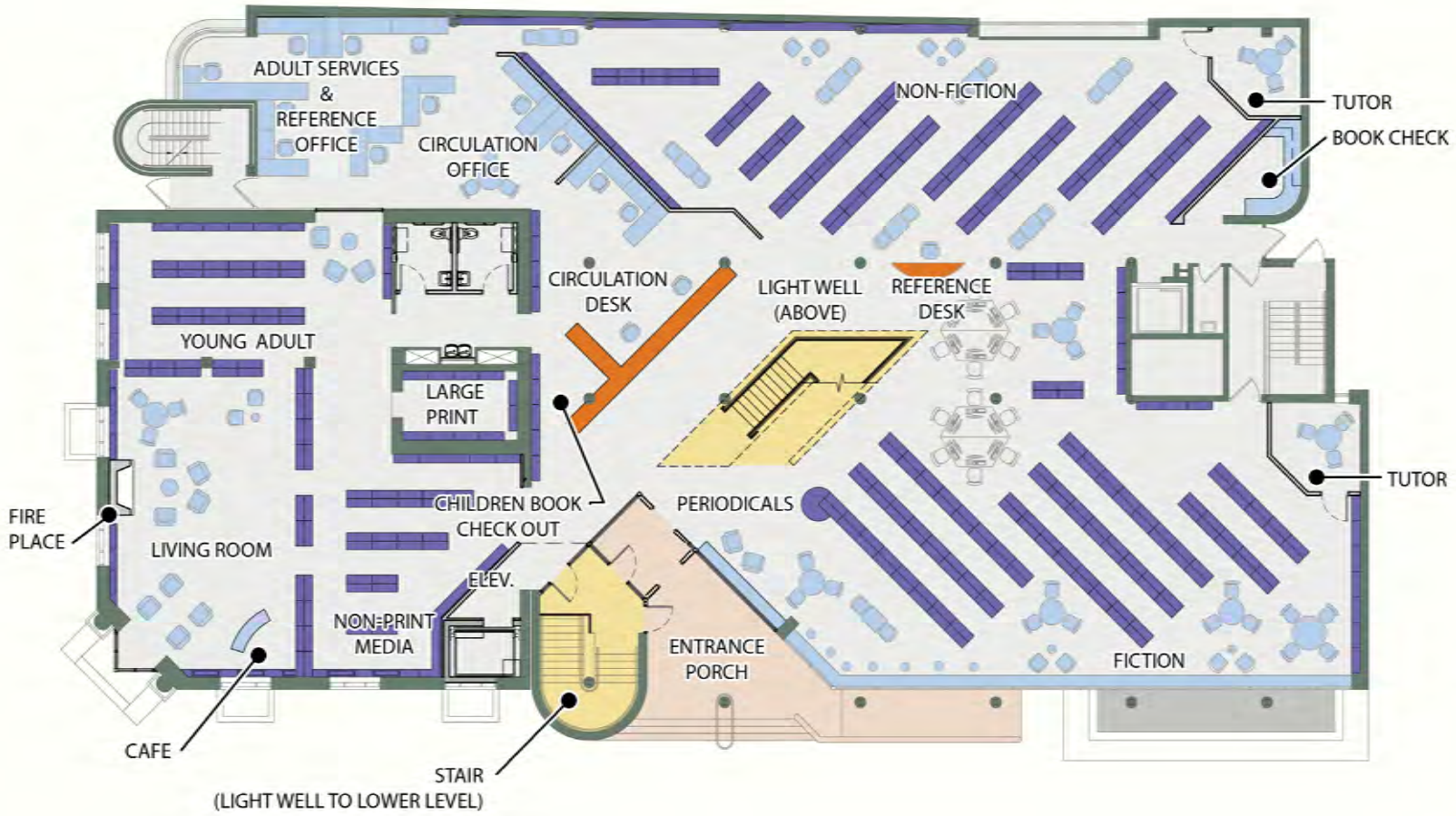
SCALE: 0 2 4 8 16

Haverford township *free library*

CONCEPTUAL LOWER LEVEL FLOOR PLAN

CASACCIO ARCHITECTS YU
Mission Driven Design

March 20, 2013



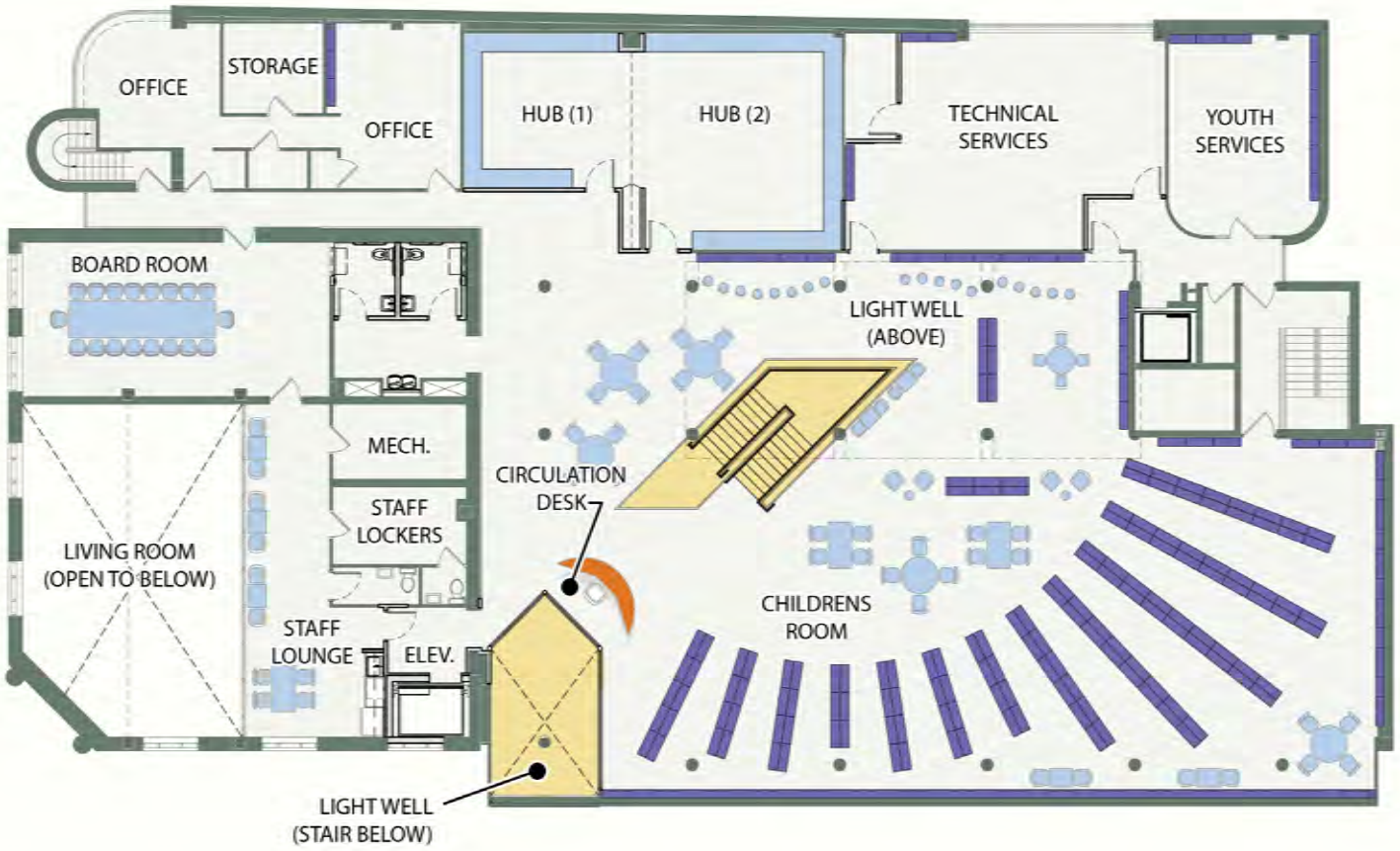
SCALE: 0 2 4 8 16

Haverford township *free library*

CONCEPTUAL FIRST FLOOR PLAN

CASACCIO ARCHITECTS YU
Mission Driven Design

March 20, 2013



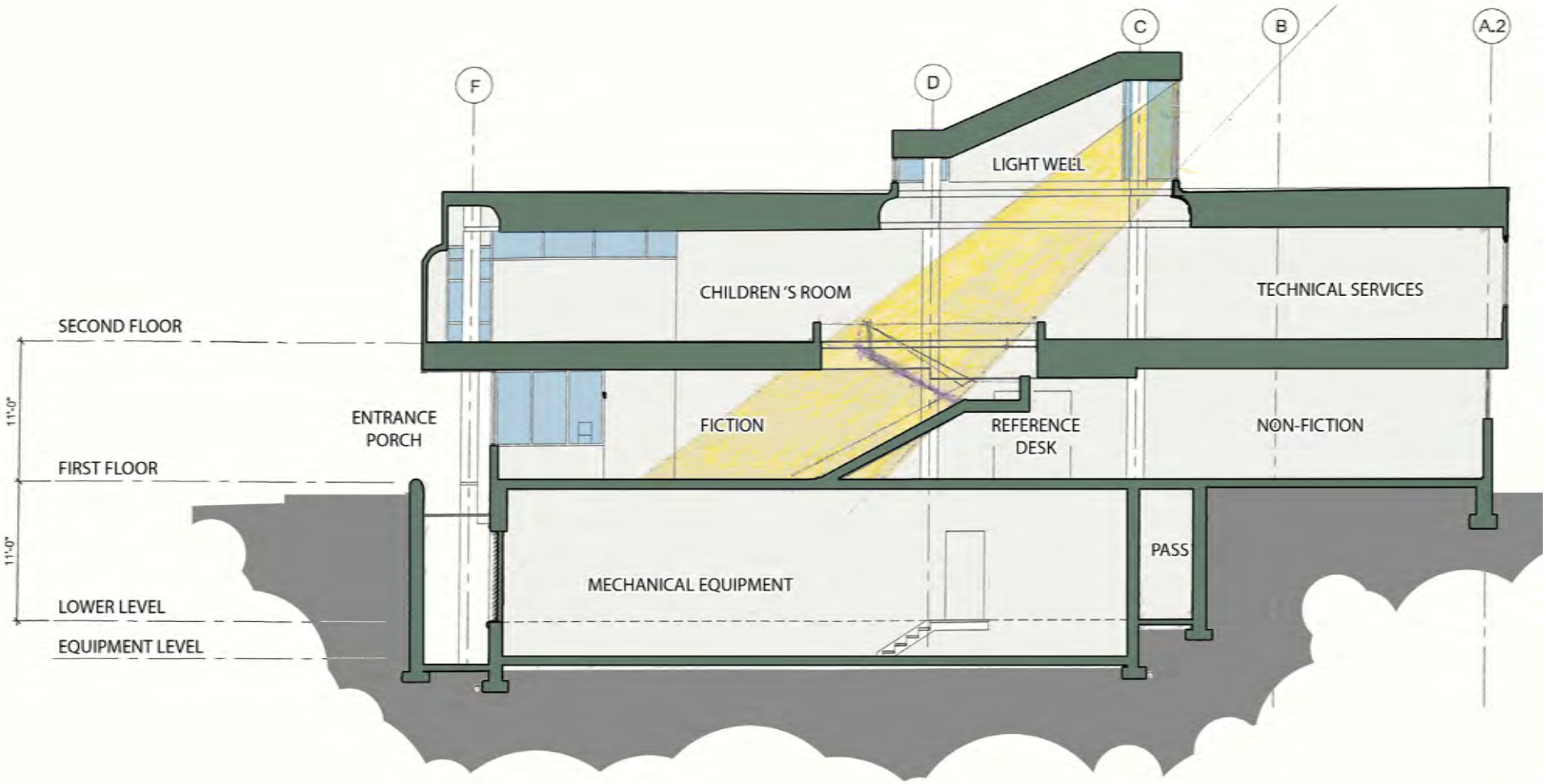
SCALE: 0 2 4 8 16

Haverford township *free library*

CONCEPTUAL SECOND FLOOR PLAN

CASACCIO ARCHITECTS YU
Mission Driven Design

March 20, 2013



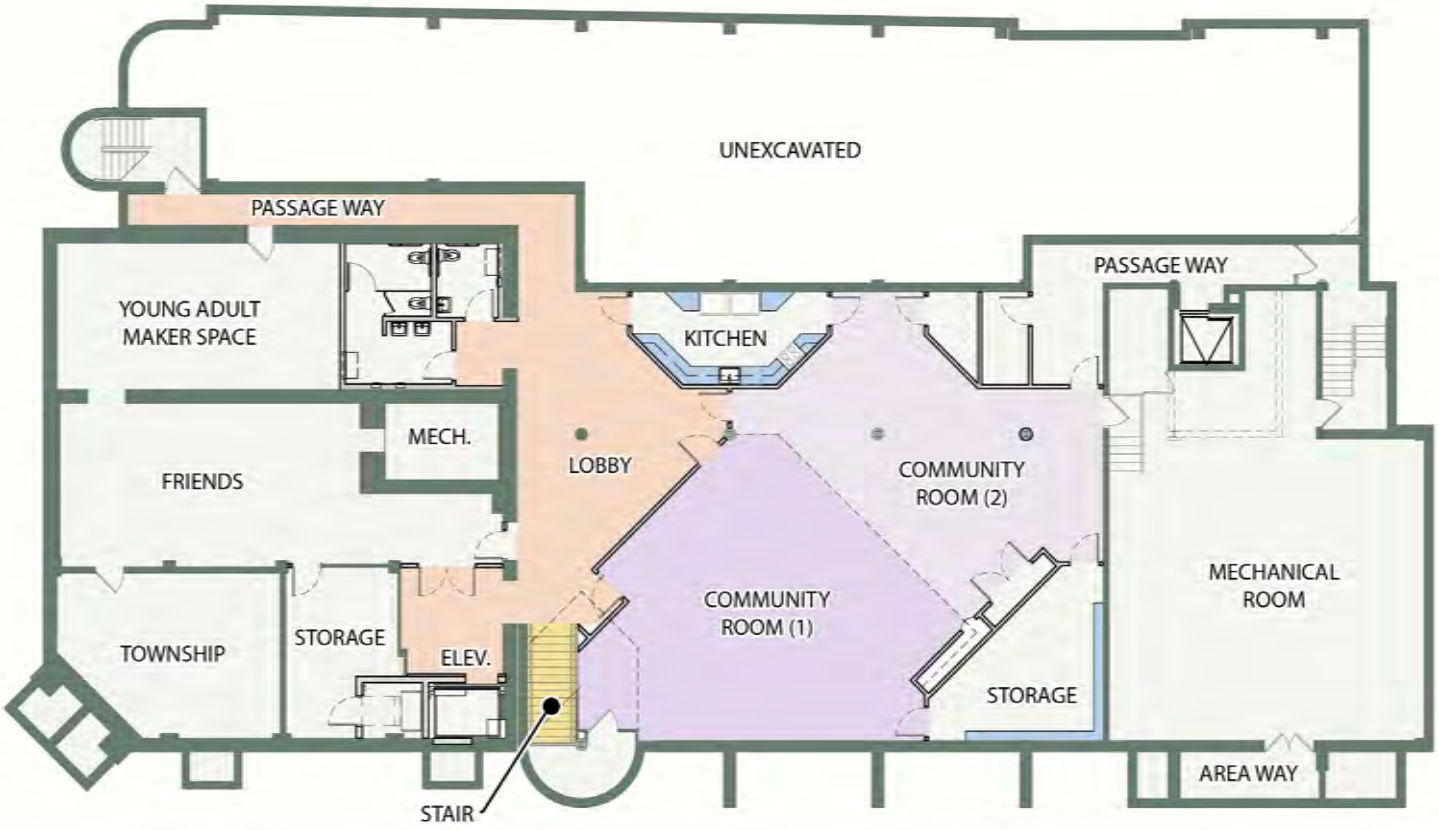
Haverford township *free library*

CONCEPTUAL BUILDING SECTION

CASACCIO ARCHITECTS YU

Mission Driven Design

March 20, 2013



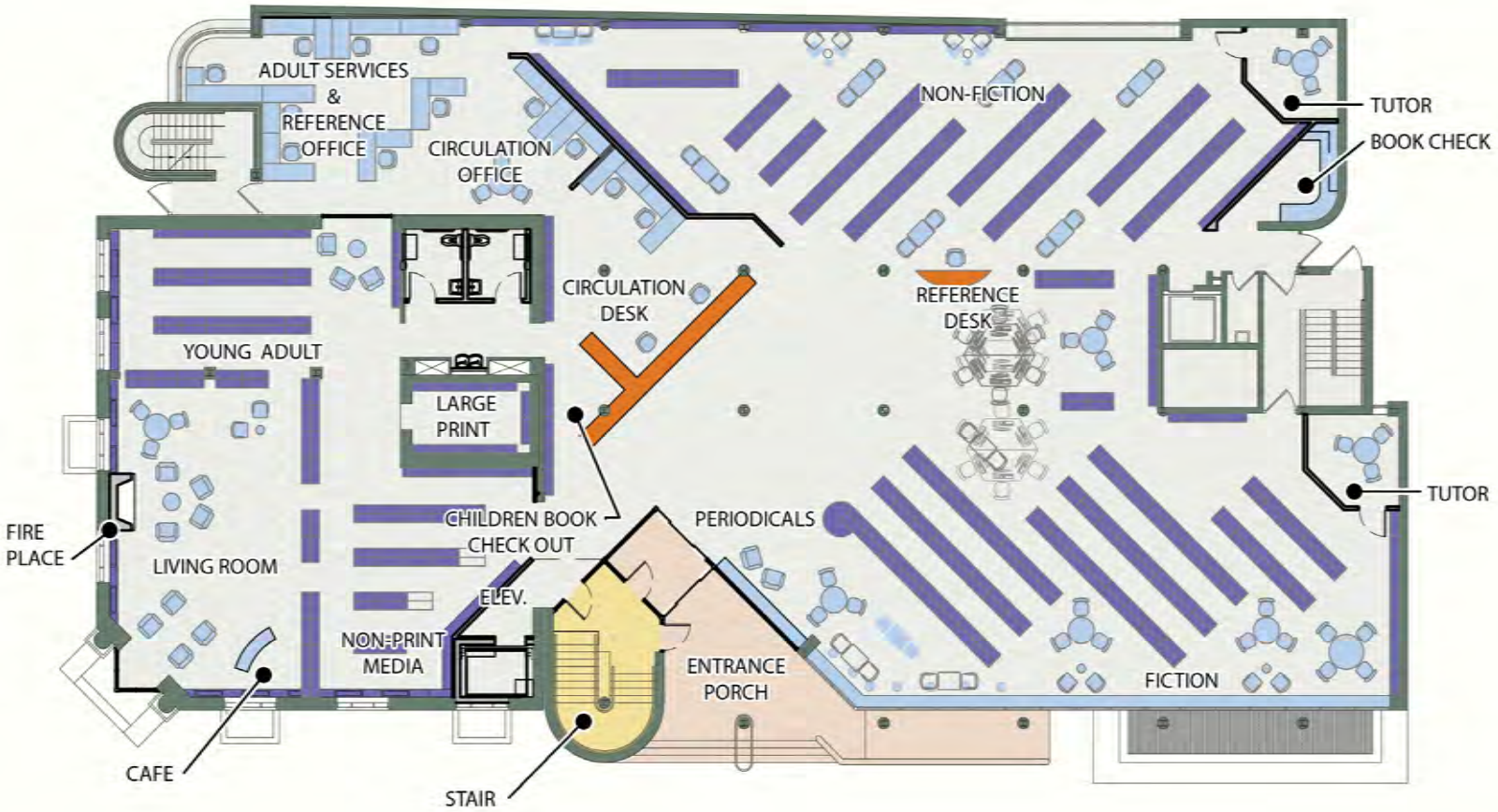
SCALE: 0 2 4 8 16

Haverford township *free library*

CONCEPTUAL LOWER LEVEL FLOOR PLAN

CASACCIO ARCHITECTS YU
Mission Driven Design

N March 20, 2013, REV July 23, 2013



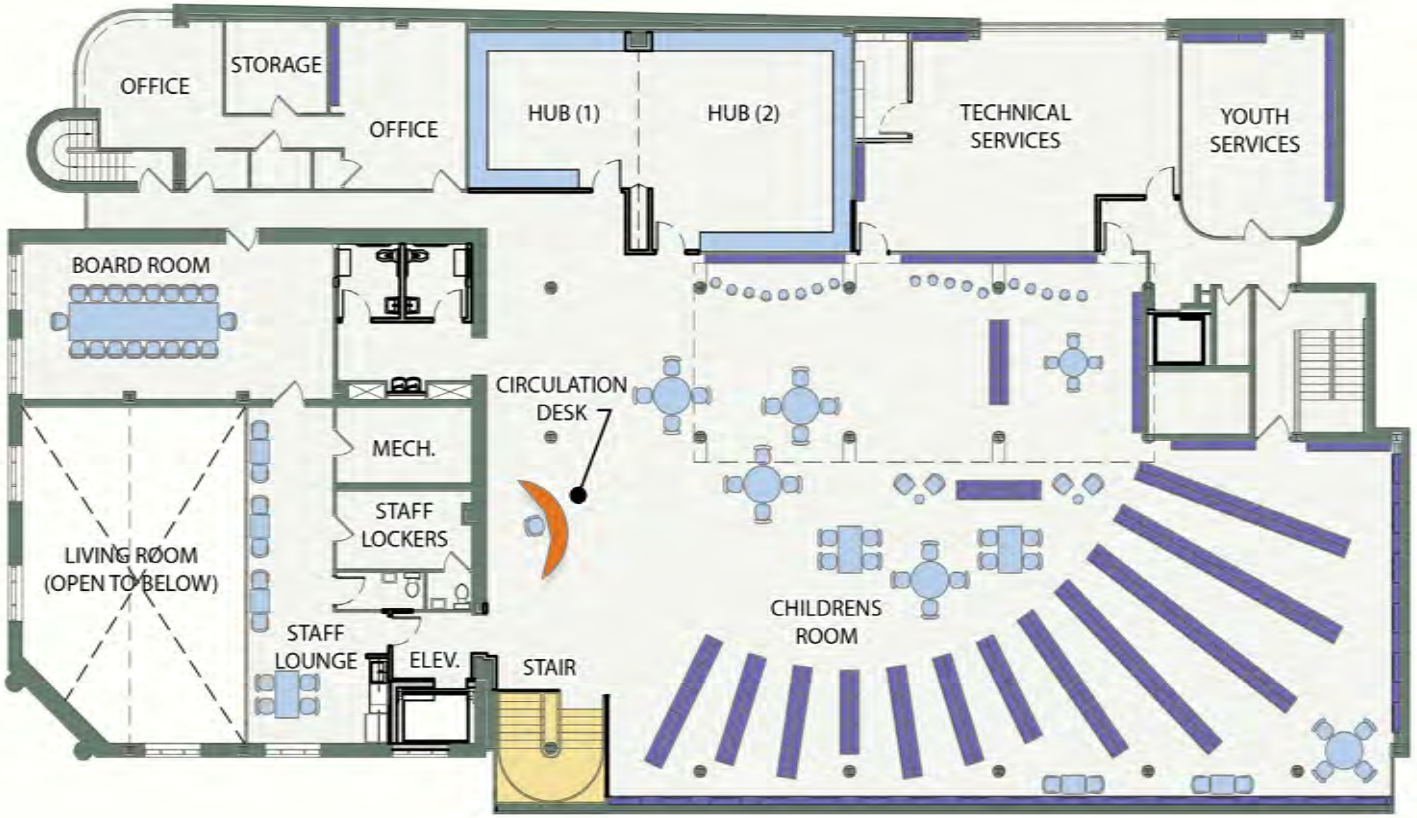
SCALE: 0 2 4 8 16

Haverford township *free library*

CONCEPTUAL FIRST FLOOR PLAN

CASACCIO ARCHITECTS YU
Mission Driven Design

March 20, 2013, REV July 23, 2013



SCALE: 0 2 4 8 16

Haverford township *free library*

CONCEPTUAL SECOND FLOOR PLAN

CASACCIO ARCHITECTS YU
Mission Driven Design

March 20, 2013, REV July 23, 2013

Final Presentation..... E

© Casaccio Yu Architects 2013

Haverford Township Free Library

Space Utilization Study Phase Presentation

March 27, 2013

Space Utilization Study Phase

© Casaccio Yu Architects 2013

Mechanical, Electrical and Plumbing Systems

- 30+ years old
- Degraded
- Inefficient
- At end or beyond useful life

Mechanical Systems

Boiler

- Oil fired
- Single Unit

Heating system

- Hot water fin-tube (damaged)
- Hot water coils in HVAC units

Ventilation and Air Conditioning

- 3 Existing air handlers
- A/C chiller in basement
- Cooling tower on roof

Space Utilization Study Phase

© Casaccio Yu Architects 2013

Plumbing Systems

- Existing fixtures not ADA
- High water usage
- Water heater is not energy efficient

Electrical Systems

- Insufficient outlets throughout library
- Electric panels no longer manufactured
- Electric panels are full
- Some lighting controlled through electric panels
- Inefficient T12 and incandescent lighting

Space Utilization Study Phase

© Casaccio Yu Architects 2013

Mechanical, Electrical and Plumbing System Updates

Boiler

- New gas fired
- 2 Units for redundancy

Heating system

- Replace damaged hot water fin-tube

Ventilation and Air Conditioning

- Replace air handlers in basement and second floor
- Replace A/C chiller in basement
- Replace cooling tower on roof

Controls

- Add control systems for control of individual spaces and exposures within open spaces
- Allow systems to adjust to heating and cooling demands

Space Utilization Study Phase

© Casaccio Yu Architects 2013

Plumbing Systems

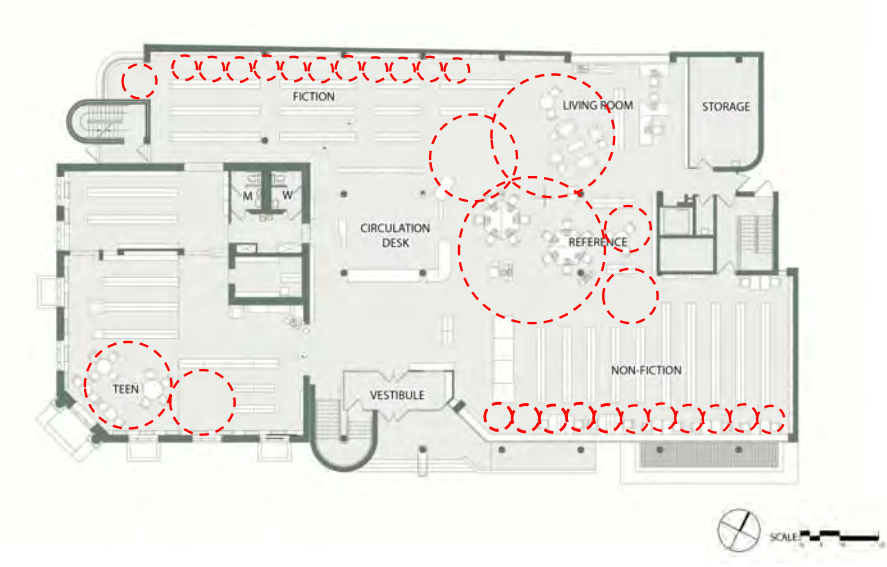
- Replace fixtures
- Water saving features – dual flush, low flow
- Energy efficient gas fired water heaters
- Recirculating system
- Insulate piping

Electrical Systems

- Existing service may be acceptable – further testing
- Replace all electric panels – added capacity
- Energy efficient lighting
- Add lighting controls

Existing First Floor Plan

© Casaccio Yu Architects 2013

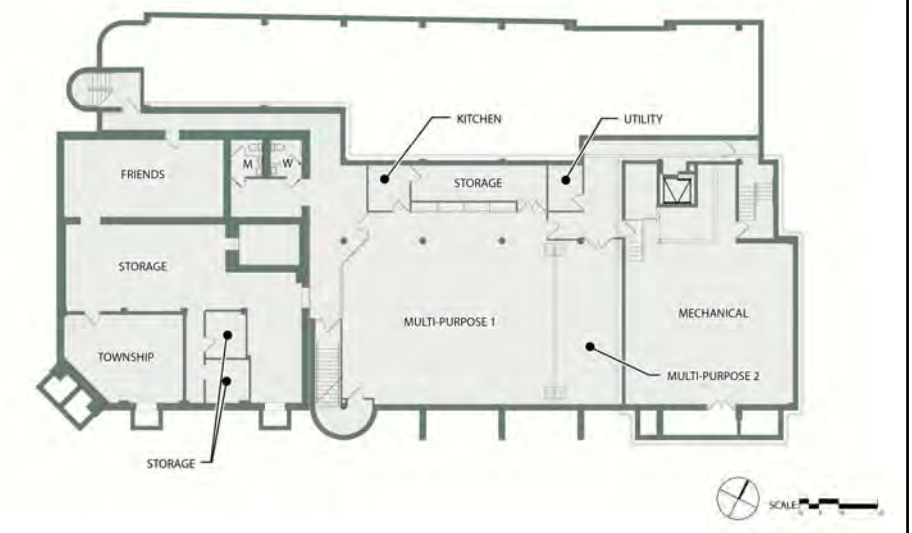


Existing Second Floor Plan

CASACCIO ARCHITECTS YU
Mission Driven Design
© Casaccio Yu Architects 2013

Existing Lower Level Floor Plan

CASACCIO ARCHITECTS YU
Mission Driven Design
© Casaccio Yu Architects 2013

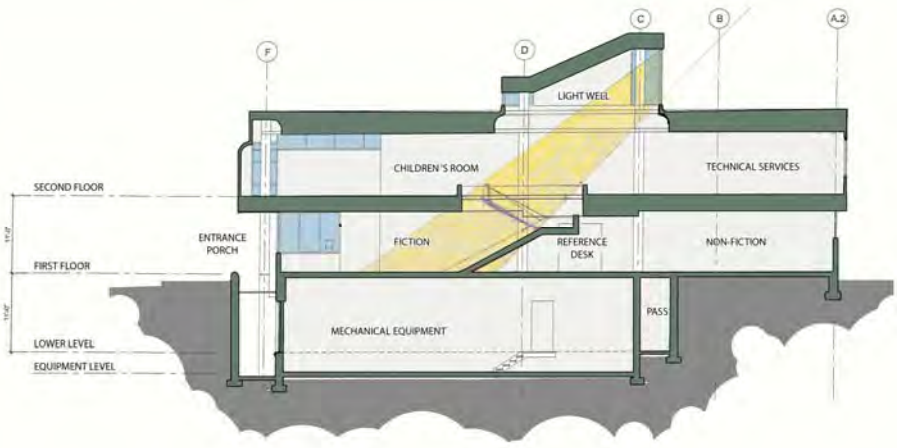


Conceptual First Floor Plan

© Casaccio Yu Architects 2013

Conceptual Building Section

© Casaccio Yu Architects 2013



Conceptual Second Floor Plan

CASACCIO ARCHITECTS YU
Mission Driven Design
© Casaccio Yu Architects 2013

Conceptual Lower Level Floor Plan

CASACCIO ARCHITECTS YU
Mission Driven Design
© Casaccio Yu Architects 2013

Space Utilization Study Phase

© Casaccio Yu Architects 2013

Space Utilization Study Phase
Base Building Only
Statement of Probable Project Development Costs - DRAFT

Construction Cost		
Building (Renovation)	ICI Estimate ($96/SF)	$3,001,430
Site	(NIC)	$0
Subtotal Cost of Construction		**$3,001,430**
Other Project Costs		
Professional Fees, Basic Tele-Data/Technology, Testing, etc.		
Subtotal Other Project Costs @ 15%		**$450,215**
Owner Contingency @ 10%		$345,164
Total		**$3,796,809**

Notes

1 Escalation - Pricing reflects current 2013 cost conditions and does not take into consideration future upswings in market conditions and bidding climate.

2 Costs related to temporary facilities and relocation expenses are not included.

3 Fundraising, hazmats and financing costs are not included.

Space Utilization Study Phase

© Casaccio Yu Architects 2013

Space Utilization Study Phase
Statement of Probable Project Development Costs - DRAFT

Construction Cost		
Building (Renovation)	ICI Estimate ($128/SF)	$4,007,760
Site	(NIC)	$0
Subtotal Cost of Construction		**$4,007,760**
Other Project Costs		
Professional Fees, FF&E (Furniture, Fixtures & Equipment), Tele-Data/Technology, Testing, etc.		
Subtotal Other Project Costs @ 25%		**$1,001,940**
Owner Contingency @ 10%		$500,970
Total		**$5,510,670**

Notes

1 Escalation - Pricing reflects current 2013 cost conditions and does not take into consideration future upswings in market conditions and bidding climate.

2 Costs related to temporary facilities and relocation expenses are not included.

3 Fundraising, hazmats and financing costs are not included.

Space Utilization Study Phase

CASACCIO ARCHITECTS YU Mission Driven Design

© Casaccio Yu Architects 2013

VISION

We envision our library as a **dynamic community hub** for life-long learning, creativity, and culture **now and** into the **future**.

MISSION

The mission of the Haverford Township Free Library is to provide residents of the Township of Haverford, as well as the public at large, with exemplary access to the broadest possible range of resources, programs and services that **enhance and enrich their lives.**

The **GOALS** of the Haverford Township Free Library are to

- **Increase community involvement** in the Library
- Situate the Library as an **active, vital community hub**
- **Improve availability and access** to quality materials and services
- **Ensure** that the library **building/facilities fully support the mission** and reflect community goals and needs

Budget..... F

Haverford Township Free Library

DRAFT

Library Renovations

March 20, 2013

PN 13001/1.40

Space Utilization Study Phase

Base Building Only

Statement of Probable Project Development Costs - DRAFT

Construction Cost		
Building (Renovation)	ICI Estimate ($96/SF)	$3,001,430
Site	(NIC)	$0
Subtotal Cost of Construction		**$3,001,430**
Other Project Costs		
Professional Fees, Basic Tele-Data/Technology, Testing, etc.		
Subtotal Other Project Costs @ 15%		**$450,215**
Owner Contingency @ 10%		$345,164
Total		**$3,796,809**

Notes

1 Escalation - Pricing reflects current 2013 cost conditions and does not take into consideration future upswings in market conditions and bidding climate.

2 Costs related to temporary facilities and relocation expenses are not included.

3 Fundraising, hazmats and financing costs are not included.

CASACCIO ARCHITECTS YU

Mission Driven Design

Space Utilization Study Phase
Statement of Probable Project Development Costs - DRAFT

Construction Cost		
Building (Renovation)	ICI Estimate ($128/SF)	$4,007,760
Site	(NIC)	$0
Subtotal Cost of Construction		**$4,007,760**
Other Project Costs		
Professional Fees, FF&E (Furniture, Fixtures & Equipment), Tele-Data/Technology, Testing, etc.		
Subtotal Other Project Costs @ 25%		**$1,001,940**
Owner Contingency @ 10%		$500,970
Total		**$5,510,670**

Notes

1 Escalation - Pricing reflects current 2013 cost conditions and does not take into consideration future upswings in market conditions and bidding climate.

2 Costs related to temporary facilities and relocation expenses are not included.

3 Fundraising, hazmats and financing costs are not included.

CASACCIO ARCHITECTS YU
Mission Driven Design

Conceptual Construction Cost Estimate

CASACCIO YU ARCHITECTS
HAVERFORD LIBRARY
INTERIOR RENOVATIONS
HAVERFORD, PENNSYLVANIA

ICI #: 213920
Prep: mcf
Date: 3/18/2013
Revised:

CONCEPTUAL COST ESTIMATE

Account	Description			*Cost/SF 31,300*	Amount
1.0	General Requirements (% of Accounts 2.0 through 16.0)	18%	*$*	*19.53*	$ 611,353
2.0	Demolition		*$*	*5.43*	169,884
3.0	Concrete		*$*	*3.18*	99,544
4.0	Masonry		*$*	*1.01*	31,625
5.0	Metals		*$*	*4.00*	125,063
6.0	Woods & Plastics		*$*	*4.54*	142,140
7.0	Moisture Protection		*$*	*0.92*	28,750
8.0	Doors & Windows		*$*	*12.77*	399,550
9.0	Finishes		*$*	*18.92*	592,296
10.0	Specialties		*$*	*2.60*	81,305
11.0	Equipment		*$*	-	-
12.0	Furnishings		*$*	-	-
13.0	Special Construction		*$*	-	-
14.0	Conveying Systems		*$*	*2.76*	86,250
15.0	Plumbing		*$*	*11.66*	365,000
15.5	HVAC		*$*	*26.36*	825,000
16.0	Electrical		*$*	*14.38*	450,000
	Subtotal		*$*	*128.04*	$ 4,007,760
	Escalation	0%			-
	TOTAL ESTIMATED CONSTRUCTION COST		*$*	*128.04*	**$ 4,007,760**

Basement Level	*7,800*	*SF*
First Floor	*11,500*	*SF*
Second Floor	*12,000*	*SF*
Total	*31,300*	*SF*

CASACCIO YU ARCHITECTS
HAVERFORD LIBRARY
INTERIOR RENOVATIONS
HAVERFORD, PENNSYLVANIA

ICI #: 213920
Prep: mcf
Date: 3/18/2013
Revised:

CONCEPTUAL COST ESTIMATE

Account	Description		Quantity	Unit	Unit Cost	Amount
2.0	**DEMOLITION**					
	Temporary Barriers/Protection		1	LS	$ 10,000.00	$ 10,000
	Demolish/Remove:					
	- Exterior Wall/Doors		46	LF	100.00	4,600
	- Exterior Windows		1,315	SF	10.00	13,150
	- Partitions/Doors/Casework		350	LF	50.00	17,500
	- Floor & Ceiling Finishes		31,300	SF	2.50	78,250
	- Slab on Grade		1,630	SF	7.50	12,225
	- Stair		2	Flt	4,500.00	9,000
	- Plumbing/Mechanical/Electrical				Included in 15.0, 16.0	
	Relocate/Move Stacks/Furniture					By Others
	Cut Wall Openings		6	EA	500.00	3,000
		Subtotal				$ 147,725
		Contingency	15%			22,159
		TOTAL				$ 169,884
3.0	**CONCRETE**					
	Cut Floor Opening & Reframe - Elevator		3	EA	$ 4,500.00	$ 13,500
	- Stair		1	EA	6,500.00	6,500
	New Slab on Grade		1,630	SF	12.00	19,560
	Elevator Pit		1	EA	12,000.00	12,000
	Replace Ramp @ Entry		1	LS	35,000.00	35,000
		Subtotal				$ 86,560
		Contingency	15%			12,984
		TOTAL				$ 99,544
4.0	**MASONRY**					
	Pavers/Membrane @ Exterior Entry Recess		500	SF	$ 55.00	$ 27,500
		Subtotal				$ 27,500
		Contingency	15%			4,125
		TOTAL				$ 31,625
5.0	**METALS**					
	Miscellaneous Metals/Framing as Required		1	LS	$ 15,000.00	$ 15,000
	Stairs w/Landing, Glass Railings		2	Flt	35,000.00	70,000
	Glass Railing @ Floor Opening		50	LF	475.00	23,750
		Subtotal				$ 108,750
		Contingency	15%			16,313
		TOTAL				$ 125,063

CASACCIO YU ARCHITECTS
HAVERFORD LIBRARY
INTERIOR RENOVATIONS
HAVERFORD, PENNSYLVANIA

ICI #: 213920
Prep: mcf
Date: 3/18/2013
Revised:

CONCEPTUAL COST ESTIMATE

Account	Description		Quantity	Unit	Unit Cost	Amount
6.0	**WOODS & PLASTICS**					
	Rough Carpentry & Blocking		1	LS	$ 15,000.00	$ 15,000
	Circulation Desk		34	LF	700.00	23,800
	Kitchen Base & Wall Cabinets		58	LF	600.00	34,800
	Counter @ Hub		100	LF	250.00	25,000
	Miscellaneous Millwork/Trim		1	LS	25,000.00	25,000
		Subtotal				$ 123,600
		Contingency	15%			18,540
		TOTAL				$ 142,140
7.0	**MOISTURE PROTECTION**					
	Caulking, Sealants, Firesafeing		1	LS	$ 10,000.00	$ 10,000
	Soffit @ Entry Recess		500	SF	30.00	15,000
		Subtotal				$ 25,000
		Contingency	15%			3,750
		TOTAL				$ 28,750
8.0	**DOORS & WINDOWS**					
	Doors & Frames w/Hardware:					
	- Aluminum/Glass Exterior Sliding Doors		2	Set	$ 14,500.00	$ 29,000
	- Single Swinging		4	EA	2,700.00	10,800
	- SC/ HM Interior Single		21	EA	1,250.00	26,250
	- Double		2	PR	2,375.00	4,750
	Low Gypsum Wall (3') w/Glass Above		54	LF	525.00	28,350
	Aluminum/Glass Wall		1,500	SF	75.00	112,500
	New Bay Window		110	SF	125.00	13,750
	Radius Glazing in Modified Frame		100	SF	150.00	15,000
	Radius Glazing in New Frame		190	SF	185.00	35,150
	New Glazing & Frame		614	SF	85.00	52,190
	New Glazing in Modified Frame		303	SF	65.00	19,695
		Subtotal				$ 347,435
		Contingency	15%			52,115
		TOTAL				$ 399,550

CASACCIO YU ARCHITECTS
HAVERFORD LIBRARY
INTERIOR RENOVATIONS
HAVERFORD, PENNSYLVANIA

ICI #: 213920
Prep: mcf
Date: 3/18/2013
Revised:

CONCEPTUAL COST ESTIMATE

Account	Description		Quantity	Unit	Unit Cost	Amount
9.0	**FINISHES**					
	Gypsum Board Partitions		410	LF	$ 130.00	$ 53,300
	- Furr Existing Walls		380	LF	65.00	24,700
	- Patch/Repair Existing Walls as Required		1	LS	10,000.00	10,000
	- Soffits/Bulkheads (Allow $20,000/Flr)		1	LS	40,000.00	40,000
	Acoustical Tile Ceiling		29,390	SF	4.50	132,255
	Carpet		3,155	SY	45.00	141,975
	Rubber Tread/Riser		6	Flt	2,850.00	17,100
	Rubber Base		3,700	LF	2.30	8,510
	Ceramic Tile Floor		1,270	SF	15.00	19,050
	- Wall		1,680	SF	15.00	25,200
	Paint Walls		33,500	SF	1.00	33,500
	- Doors & Frames (New & Existing)		63	EA	150.00	9,450
		Subtotal				$ 515,040
		Contingency	15%			77,256
		TOTAL				$ 592,296
10.0	**SPECIALTIES/EQUIPMENT**					
	Bathroom Accessories		1	LS	$ 6,500.00	$ 6,500
	Operable Partition		68	LF	700.00	47,600
	Shade		200	SF	8.00	1,600
	Gas Fireplace w/Millwork Enclosure		1	LS	15,000.00	15,000
		Subtotal				$ 70,700
		Contingency	15%			10,605
		TOTAL				$ 81,305
14.0	**CONVEYING SYSTEMS**					
	Hydraulic Elevator, 3 Stop		1	EA	$ 75,000.00	$ 75,000
		Subtotal				$ 75,000
		Contingency	15%			11,250
		TOTAL				$ 86,250

CASACCIO YU ARCHITECTS
HAVERFORD LIBRARY
INTERIOR RENOVATIONS
HAVERFORD, PENNSYLVANIA

ICI #: 213920
Prep: mcf
Date: 3/18/2013
Revised:

CONCEPTUAL COST ESTIMATE

Account	Description		Quantity	Unit	Unit Cost	Amount
15.0	**PLUMBING**					
	Plumbing (Per Engineers)		1	LS	$ 240,000.00	$ 240,000
	Sprinklers (Per Engineers)		1	LS	125,000.00	$ 125,000
	($125,000 if Desired)				-	-
		Subtotal				$ 365,000
		Contingency	0%	Incl.		-
		TOTAL				$ 365,000
15.5	**HVAC**					
	HVAC (Per Engineers)		1	LS	$ 825,000.00	$ 825,000
		Subtotal				$ 825,000
		Contingency	0%	Incl.		-
		TOTAL				$ 825,000
16.0	**ELECTRICAL**					
	Electrical (Per Engineers)		1	LS	$ 450,000.00	$ 450,000
		Subtotal				$ 450,000
		Contingency	0%	Incl.		-
		TOTAL				$ 450,000

Sustainable Design Strategies ..... G

May 9, 2013
Haverford Township Free Library
Space Utilization Study

Sustainable Design Strategies

Like most successful sustainable projects, the proposed improvements to the Library have integrated sustainable practices from project inception.

Sustainable Objectives of Haverford Township free Library

- Maximize energy performance of the building (Envelope, mechanical / electrical systems)
- Maximize adaptability of interior spaces for optional uses.
- Create / Maintain a healthy environment

Library Sustainable Strategies

Building Envelope:

- Improve energy performance of all building envelope systems:
  - Walls – Increase insulation values
  - Windows – Utilize insulated glass assemblies, reduce UV transmission and apply heat reflective coatings.
  - Roof (Note – Roof recently replaced) – Increase insulation values, utilize reflective light colored roof membranes.
  - Entrance/Door Systems – Provide vestibules with sliding door systems, reduce opening size and duration of vestibule doors being open simultaneously.

Building Systems:

- Incorporate interior building systems that allow for adapting spatial configurations with minimum construction.
- Develop spaces that allow for multiple uses.

Natural Day lighting and Views:

- Visual Accessibility / transparency of space.
- Take advantage of natural day light.

Building Materials:

- Minimize use of products that emit VOC's.
- Maximize use of materials with high recycled content and that can be recycled.
- Utilize materials that contribute to good health, increase productivity, and that minimize impact on the environment.

Buildings Mechanical, Electrical and Plumbing Systems:

- Maximize energy performance of heating, air conditioning and ventilation systems.
- Utilize systems that provide high levels of human comfort.
- Improve natural and artificial light quality.
- Minimize energy consumption of artificial lighting systems.
- Utilize systems that contribute to healthy environments.
- Install alternative energy options when possible – solar hot water, photo voltaic panels.

MEP Assessment ..... APPENDIX

HAVERFORD TOWNSHIP FREE LIBRARY, HAVERFORD, PA

ASSESSMENT REPORT OF MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS

March 13, 2013

SUMMARY

The following report is based on our observations at our site visit on February 28, 2013 and review of documents including existing plans, proposed architectural renderings, and an existing conditions report prepared by Bruce E. Brooks and Associates from 2003.

OVERVIEW OF EXISTING MECHANICAL SYSTEMS

The heating system consists of an aging 1200-MBH Weil-McLain oil-fired boiler which supplies hot water that is pumped via inline pump to perimeter finned-tube convectors. Hot water is also piped to hot water coils within the two main air handlers. The oil tank is located under the rear parking lot.

Cooling and ventilation are provided by two large air handlers which are zoned with variable air volume valves (VAVs). The air handler in the basement mechanical room serves the first floor and basement levels. The second floor air handler serves the entire second floor. Ventilation air is ducted from the exterior through these two air handlers. Each air handler has chilled water and hot water coils to control temperature. All units are pneumatically controlled. The computer room has a (much newer) dedicated packaged rooftop Carrier air handler.

Chilled water is provided by a 90-ton water cooled York chiller in the basement mechanical room, which is cooled through a rooftop Marley cooling tower. Water is pumped via (2) 5-HP B&G pumps, one each for chilled water and condenser water.

Toilet room exhaust is ducted to a rooftop exhaust fan which did not appear to be operating at the time of our survey.

MECHANICAL SYSTEMS RECOMMENDATIONS

In general, the existing mechanical systems are degraded, inefficient, and at the very end of (or beyond) their expected useful lifetime. The types of systems installed however, are still very viable for this building. Changing to a different type of system is not necessary if the existing system components are replaced with modern versions with higher efficiency and controls as follows:

1. Boiler
    a. Remove existing oil fired boiler and replace with (2) new high efficiency gas fired sealed combustion direct vent boilers. Each boiler shall be sized for 60% of the total load in order to provide staging and redundancy.
    b. Locate boilers with minimum 36" clearance on all sides as per PA "L&I" (Boiler Division) Code requirements.
    c. Extend new direct vent intake and vent piping to new sidewall or rooftop vent terminals.
    d. Extend new gas supply from new gas service (see plumbing section).
    e. Provide condensate neutralizers and extend to floor drain or sump.
    f. Furnish each boiler with matched circulation pump.
    g. Install boiler control panel with sequencer controls.

2. Hot Water Supply System
    a. Replace existing inline pumps with new modulating pumps with variable frequency drive motors.
    b. Re-insulate all existing and new hot water piping with fiberglass insulation as required by the Energy Code.
    c. Replace any perimeter finned-tube convectors as necessitated by the architectural floor plan revisions. Replace any convector which is presently damaged. (Assume 50% replacement)
    d. Install new 2-way/3-way modulating control valves for each heating zone. System shall be zoned so that each individual room has its own control, or in the case of large open spaces, each exposure.
    e. Provide new expansion tank, air separator, and domestic water makeup.

f. Replace all existing hot water unit heaters and cabinet unit heaters.
g. Provide new insulated piping to new hot water coils in air handlers and VAVs.
h. Contractor to assess the interior conditions of the existing hot water piping system and piping wall thickness/condition. Existing hot water piping may be reused if corrosion is not evident.

3. Second Floor Air Handler (AH-1)
   a. Remove the existing air handler and replace with a new custom double wall unit with modulating variable frequency drive forward curved supply fan, hot water coil, chilled water coil, filter box, and mixing section.
   b. New ventilation duct to extend to new rooftop intake vent. Sized for full economizing and new relief vent. Economizing controls, dampers, and sensors to be installed.
   c. Provide interlock to new digital control system.
   d. Provide new vibration spring isolators.
   e. Provide new duct smoke detectors. (Interlock by Fire Alarm Contractor)

4. Basement Air Handler (AH-2)
   a. Remove the existing air handler and replace with a new custom double wall unit with modulating variable frequency drive forward curved supply fan, return fan (in duct), hot water coil, chilled water coil, filter box, air blender, and mixing section.
   b. New ventilation duct to extend to areaway louvers. Sized for full economizing and new relief duct to areaway louvers. Economizing controls, dampers, and sensors to be installed.
   c. Provide interlock to new digital control system.
   d. Provide new vibration spring isolators.
   e. Provide new duct smoke detectors. (Interlock by Fire Alarm Contractor)

5. Rooftop Air handler
   a. Existing unit shall remain.
   b. Existing to be tied into new digital control system.
   c. Contractor shall perform rebalancing and test refrigerant charge.

6. Water Cooled Chiller
    a. Remove existing chiller and replace with a new centrifugal water cooled chiller with variable speed compressor motor and/or modulating or multiple stages of compressor unloading for efficient part-load control.
    b. Provide interlock to new digital control system.

7. Cooling Tower and Condenser Water System
    a. Remove existing cooling tower and replace with new tower with variable speed super low sone fan, variable speed spray pumps, positive closure dampers, and basin heater.
    b. Provide new electrostatic water treatment system.
    c. Provide new vibration isolation rails.
    d. Provide interlock to new digital control system. Provide all new temperature and pressure sensors.
    e. Provide heat tracing for water piping.
    f. Provide new piping curbs and sealing for all roof penetrations.
    g. Contractor shall assess interior condition of existing condenser water piping walls. Existing condenser water piping may be reused if corrosion is not evident.
    h. Replace existing condenser water pump with new base mounted centrifugal modulating pump with variable frequency drive. Provide interlock to new digital control system

8. Chilled Water System
    a. Replace existing chilled water pump with new base mounted centrifugal modulating pump with variable frequency drive. Provide interlock to new digital control system. Provide all new temperature and pressure sensors. Insulate new pumps.
    b. Re-insulate all existing and new chilled water piping with fiberglass insulation as required by the Energy Code.
    c. Install new 2-way modulating control valves for each air handler.
    d. Provide new air separator and domestic water makeup.
    e. Provide new insulated piping to new chilled water coils in air handlers.
    f. Contractor shall assess interior condition of existing chilled water piping walls. Existing chilled water piping may be reused if corrosion is not evident.

9. Variable Air Volume Units
    a. Replace all existing VAV's and install new single zone VAV's on all zones. Additional zones shall be added such that spaces with different exposures and/or uses shall be zoned separately with separate controls.
    b. Hot water coils with 2-way modulating valves shall be installed for any exterior zones without perimeter convectors.
    c. Provide interlock to new digital control system.
    d. Perimeter zone VAV's to be fan powered parallel type VAV boxes.

10. Ductwork
    a. New ductwork shall be extended as necessary for areas that are rezoned.
    b. All supply and outside air ductwork shall be externally wrapped with fiberglass insulation with all service jackets.
    c. Contractor shall assess interior condition of any duct which is to be reused. Existing ductwork may be reused if of acceptable size/gauge and is professionally cleaned and internally coated/sealed.

11. Air Devices
    a. All air diffusers shall be replaced.
    b. Diffusers shall be a combination of linear diffusers and square lay-in type.
    c. All return and exhaust grilles shall be replaced.

12. Exhaust System
    a. Provide a new rooftop exhaust fan to replace the existing.
    b. Provide new exhaust system and associated controls for the new refrigerant detection system.

13. Controls
    a. All existing pneumatic controls shall be removed.
    b. Replace with a new direct digital control system. System shall be open protocol such as BACnet or Lon Works. Software shall be Honeywell Tridium web-based framework. No proprietary equipment/systems are permitted.
    c. Extend system wiring to all equipment as noted.

d. Provide PC workstation with software and web access.
e. Program all sequences and front end.
f. Provide owner training in system operation.
g. Provide new sensors throughout.

14. Water Treatment
    a. Provide new water treatment systems for hot water, chilled water, and condenser water systems.
    b. Provide one year's chemicals.

15. Testing and Balancing
    a. Provide testing and balancing of all air and water systems.

16. Refrigerant Detection System (Code required)
    a. Provide a refrigerant detection system in the main boiler room complete with all sensors, alarms, controls, exhaust fan, and intakes with motor operated dampers.

17. Generator Exhaust Venting, Fan, and Louvers
    a. Mechanical contractor shall extend new high temperature generator vent piping to roof in accordance with manufacturer's guidelines. Replace existing.
    b. Mechanical contractor shall install new intake/exhaust louvers, exhaust fan, control dampers, ducting, actuators, etc. as necessary to provide combustion air and cooling air to the new generator.

OVERVIEW OF EXISTING PLUMBING SYSTEMS

The main toilet rooms are stacked in the original building area. Additionally there are janitor closets with mop sinks. There is a new kitchenette in the third floor employee area.

The sanitary drainage system runs out via gravity to a 6" sewer line. A 2" domestic water service feeds the building. A duplex ejector pump is installed to pump waste from the elevator sump and mechanical room floor drains.

There is an underground fuel oil storage tank under the rear parking lot which feeds the existing generator and boiler. There is currently no gas to the building.

PLUMBING SYSTEMS RECOMMENDATIONS

1. Plumbing Fixtures
    a. Remove and replace all existing water closets with new handicapped dual flush sensor operated flushometer type.
    b. Remove and replace all existing lavatories with new handicapped sensor operated low flow type.
    c. Remove and replace all existing urinals with new low flow sensor operated flushometer type.
    d. Provide new dual level handicapped electric water coolers throughout.
    e. Existing kitchenette fixtures to remain.

2. Water Heaters
    a. Provide a new high efficiency gas fired sealed combustion tank type 40 gallon water heater for the main toilets with recirculating pump and mixing valve. Extend venting to acceptable sidewall or rooftop terminal.
    b. Provide a new high efficiency gas fired sealed combustion tank type 40 gallon water heater for the janitor's closets with recirculating pump. Extend venting to acceptable sidewall or rooftop terminal.

3. Piping Insulation
    a. Re-insulate all existing and new hot and cold domestic water piping with fiberglass insulation as required by the Energy Code.

4. New Gas Service
    a. Extend a new gas service to the building. Coordinate installation and metering with PECO gas.
    b. Extend black steel gas piping to the new boilers and new water heaters.
    c. Exterior exposed gas piping shall be painted to prevent corrosion.

5. Sump Pumps
    a. Furnish and install a new elevator sump pump with oil detection sensor for the new elevator.

b. Remove and replace the existing duplex ejector pump and sump in the main mechanical room.

6. Existing Oil Storage System
   a. Piping system to be removed within the building.
   b. Existing fuel sump pit near generator to be abated and in filled.
   c. Existing underground storage tank to be filled with sand and abandoned in place in accordance with Federal and State EPA guidelines.
   d. The condition of the existing underground oil storage tank is unknown. We recommend obtaining the services of a professional to test and investigate the existing condition.

7. Generator Oil Piping
   a. Provide fuel oil fill pipe and vent from generator to new exterior fill station.

OVERVIEW OF EXISTING ELECTRICAL SYSTEMS

The building is served by a 13.2 kV primary electrical underground service. The substation with metering and transformers is located in the main basement mechanical room. The distribution is 3-phase 208 V and is protected with a 1000 Amp main breaker. Water infiltration is evident at the floor level of the mechanical room in the area of the substation.

The electrical panels in the building are Federal Pacific which is no longer manufactured and replacement parts are not available. Most panels are full and many breakers are taped to prevent accidental shut-off of lighting. The staff has addressed the desire to have additional outlets.

A Kohler diesel genset is located in the main mechanical room and feeds emergency lighting.

ELECTRICAL SYSTEMS RECOMMENDATIONS

1. Substation
   a. The primary switch and transformer may be acceptable for continued service. Engage a test engineer to perform an infrared scan of the

switch and transformer as well as the NETA recommended servicing of the transformer. The service report will determine the reliability of the equipment for continued use.

b. Remove and replace the 1000 Amp 208/120 V 3Ø, 4W panelboard.
c. Alternately, replace 15kV switch and 300 kVA transformer.

2. Generator
   a. Remove and replace 40 kW genset with new 50 kW genset. The genset is to be provided with a 24 hour sub base fuel tank. Coordinate with plumbing contractor for fuel supply and vent piping to exterior fill port.
   b. Remove existing generator and appurtenances. Provide new 50 kW generator with soundproof exterior weatherproof housing and subbase fuel tank. Coordinate location on property. Extend cable and conduit to new ATS and emergency power distribution.

3. Lighting Fixtures
   a. Remove existing T12 fluorescent, incandescent and HID fixtures. Replace with new more energy efficient T-5, T-8, LED or compact fluorescent fixtures.

4. Lighting Controls
   a. Reuse existing manual controls for maintenance only.
   b. Provide motion sensor or central lighting control to meet present energy code requirements.

5. Fire Alarm System
   a. Existing Silent Knight system is less than 10 years old. Perform manufacturer recommended upgrades/maintenance.

6. Mechanical Equipment
   a. Coordinate with mechanical for equipment replacement. Adjust circuit breakers and branch circuit wiring as necessary.

7. New Elevator
   a. Provide new electrical as necessary for new elevator installation.

8. Panel Replacement

a. All FPE panelboards are to be removed and replaced in kind with 42 space panelboards of similar capacity. By adding 42 space panels, sufficient space should be available for additional branch circuits and receptacle outlets throughout the facility.

FIRE PROTECTION SYSTEMS

The building is not currently sprinklered. There is however, smoke detection throughout. It is not the intention to fully sprinkler this building at this time unless required by the Township.

BUDGETARY PRICING

The following prices are approximate construction costs for the work noted above:

Mechanical:	$825,000
Plumbing:	$240,000
Electrical:	$450,000
Total MEP:	**$1,515,000**

Sprinkler System (if required): $125,000

SG:ec

x:\master specifications\description of systems\cass - haverford library 3-12-13.doc

CASACCIO
ARCHITECTS
YU

Mission Driven Design

Celebrating 60 Years!

ARCHITECTURE PLANNING INTERIOR DESIGN

CASACCIO ARCHITECTS, LLC • 1950 LAWRENCE ROAD • HAVERTOWN, PA 19083 • T 610.789.1604 • F 610.789.1627 • LEE A. CASACCIO, AIA, LEED
www.casaccio-yu.com