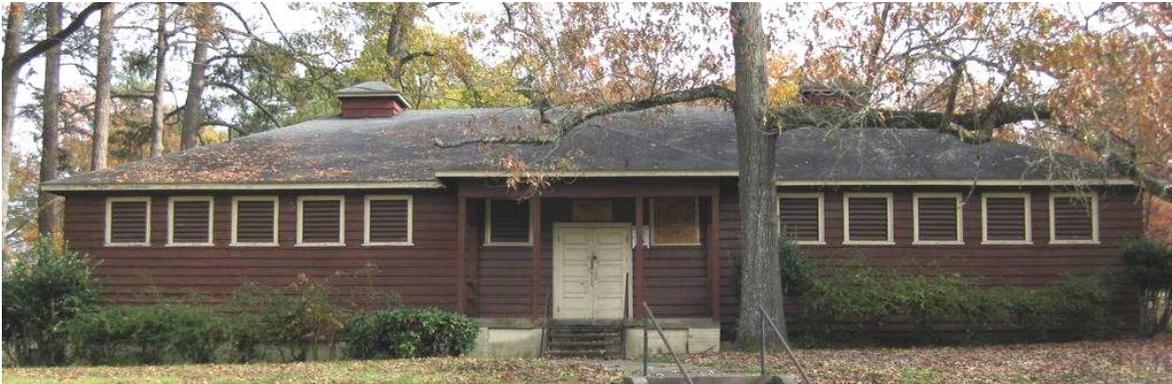


Building Assessment for Duke Park Bathhouse

Durham, North Carolina

City of Durham



December 15, 2009

Final Report

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1) SUMMARY

PURPOSE

The purpose of this building assessment of the Duke Park Bathhouse is to evaluate the building condition and determine a preliminary scope of work and budget for converting the building for use as a Community Center.

The results and recommendations contained in this report represent preliminary investigations of the building and includes site work, architectural, structural, mechanical, electrical, and plumbing.

BACKGROUND

City of Durham General Services retained RNDarchitects to conduct a three-part study of the Duke Park Bathhouse. The results of the study are contained in this report and include:

1. Facility Condition Assessment: an assessment of the existing condition of the building, including architectural, structural, plumbing, mechanical and electrical systems.
2. Recommended Scope of Work: a scope of work to restore/renovate the building for use as a Community Center. This includes two options for consideration, one based on restoration/renovation of the building, and a second, based on replacing the existing building with a new structure.
3. Opinion of Project Cost: an Opinion of Probable Project Cost for the two options listed above, including construction, design, engineering, testing, monitoring, fees and expenses.

HISTORY

The structure was supposedly constructed in the mid 1930's under the Works Progress Administration (WPA) program.¹ The building served as bathhouse to an adjacent outdoor pool. The pool suffered from a lack of maintenance and both the pool and the bathhouse were closed in 1993.² The building remains closed today.

¹ Endangered Durham, Duke Park / Duke Pool and Bathhouse, January 20, 2009, <http://endangereddurham.blogspot.com/2009/01/duke-park-duke-park-pool-and-bathhouse.html>. Comment: For those interested, this website provides a great summary of the history of the Duke Park Bathhouse.

² Dependable Erection, Duke Park Bathhouse, March 12, 2007, <http://dependableerection.blogspot.com/2007/03/duke-park-bathhouse.html>

PROJECT OVERVIEW/PROCESS

This report lists deficiencies of the existing building, including mechanical, electrical, and plumbing. The report includes a facility condition assessment, a recommended scope of work, and an opinion of probable project cost.

In early December 2009, RNDarchitects and our engineering consultants conducted several site visits to survey the building and assess the existing conditions. This report is based on visual surveys alone. No destructive testing or inspections were completed as part of this assessment.

RNDarchitects and our engineering consultant have not completed a full accessibility or life safety review of the property. This report is limited to a building condition and needs assessment.

Based on the building's age, we suspect the building to most likely contain lead-based paints. Before starting any construction work in this facility, we recommend the City perform a full environmental survey to locate and classify hazardous materials or conditions, such as asbestos, lead paint, PCB's and mold.

DESIGN TEAM

Roughton Nickelson De Luca Architects, PA

Architect: Charles Nickelson, AIA, LEED AP

Coulter Jewell Thames, PA

Landscape Architect: Dan Jewell, RLA, ASLA

Gardner & McDaniel, PA

Structural Engineers: Steve McDaniel, PE
Bill Easterling, PE, LEED AP

Edmondson Engineers, PA

Mechanical Engineer: Mike Edmondson, PE
Electrical Engineer: Dennis Hayes, PE, LEED AP

2) FACILITY CONDITION ASSESSMENT AND RECOMMENDATIONS

SITE ASSESSMENT

Accessibility: Any renovation work associated with the Bathhouse will require the site to comply with the North Carolina Accessibility Code. Nearly all the site improvements (i.e. parking, sidewalks, ramps, stairs, signage) do not meet the minimum standard of the Accessibility Code.

Recommendation: Construct new accessible parking with accessible routes to the building and the public way (Acadia Street).

Site Drainage: Areas along the north and south sides of the building suffer from surface water draining towards and under the building. The problem is likely a result of the many trees that have grown (over-grown) near the building. The roots of these trees likely extend beneath the building and contribute to the current foundation problems.

Recommendation: Remove trees located near the building and grade the site to direct water away from the building.

BUILDING STRUCTURE ASSESSMENT

The bathhouse is a wood-framed structure with a cast-in-place concrete floor system supported a masonry foundation. Based on our visual survey of the building significant repairs must be made to make the structure sound for future occupancy and meet the standards set by the North Carolina State Building Code.

Building Foundations – The foundation system is composed of brick masonry piers with infill blockwork that was not part of the original foundation. Soil settlement has caused the building to sag, especially at the porch on the east side and has resulted in gaps between the piers and the concrete floor slab. The masonry foundation system is failing and in poor condition.

Recommendation: The masonry foundation should be fully rebuilt to support the design loads or replaced with a new concrete slab on grade foundation system.

Floor System – The floor system consists of an elevated concrete slab supported on wood timbers and brick piers. The concrete floor slab is in poor condition. The wood timbers have rotted away, leaving the slab unsupported. The current condition of the floor slab is inconsistent with supporting the building code mandated live load for this structure.

Recommendation: The floor system should be fully rebuilt to with a new concrete floor system capable of supporting the building code mandated loads. This could be either an elevated concrete floor supported on masonry piers similar to the original (without the wood timbers) or a simple concrete slab-on grade foundation system.

Columns and Exterior Walls – The roof structure is supported on the exterior walls and a continuous wood beam supported by columns in the center of the building. There are two types of columns; wood posts and cast iron pipes. The wood posts suffer from extensive rot and are failing. The pipe columns are constructed of small sections of cast iron pipe joined together with threaded couplings and appear to be plumbing pipes.

The exterior wall is constructed of 2x4 wood studs with lap siding on the exterior and a mix of boards and plywood on the interior. The exterior siding is rotting and in poor condition. Condition of the wall framing system cannot be determined without removing the exterior siding or the interior wallboards.

Recommendation: The columns should be replaced with new columns. The two wood columns should be replaced immediately. The wall siding should be removed to allow for visual inspection of the wood wall framing system.

Roof Framing and Decking – The roof system consist of trussed framing supporting a 1x6 solid wood decking. Considering the age of the structure, water damage is relatively minor. Some of the wood decking has been replaced and several rafters have been repairs. Overall, much of the wood is sound. However, the roof framing system is not in accordance with the modern building code for wood construction. Some areas of particular concern are the use of slender, unbraced compression members, the location and method of nailed splices in rafters, and nailed connections at rafter ends.

Recommendation: The roof framing system should be reviewed in detail and be repaired and strengthened to meet the requirements of the building code.

EXTERIOR BUILDING ENVELOPE

The exterior building envelope is in fair to poor condition.

The exterior metal stairs on the east and west porches are constructed of metal channels with pipe rails. The stairs leading to the toilet rooms located on the north and south facades are constructed of cast in place concrete with metal pipe handrails. The concrete is damaged due to weathering and soil settlement. None of the stair treads, handrails and guardrails comply with the current building and accessibility codes.

The exterior walls consists of 2x4 wood framing with 1' thick wood lap siding and interior boards. The siding suffers from extensive wood rot and is in poor condition. There appears to be no wall insulation, which is consistent with the structure's seasonal use as a bathhouse. The windows are horizontal wood louvers with insect screens. The louvers are in fair condition except on is missing and covered with plywood. Based on archive photos from the 1950's, there were glazed awning type windows in the building at one time. It is unknown what the original windows were. The exterior doors are stile and rail wood doors. None of the doors appear to be original to the building. The doors and frames on the east porch have been modified several times to accommodate settlement. The toilet room doors on the north and south facades have been added recently.

The roof is asphalt singles that appear to be in fair condition. The roof was likely most recently replaced in the 1990's and is in fair condition. The attic is generally dry and un-insulated. There are no gutters or downspouts on the building. The wood fascia and trim work shows signs of rot and are in poor condition.

Recommendation: The exterior stairs and associated railings should be replaced. The exterior frame and siding could be deconstructed and reconstructed using salvaged and new materials. However, it is more cost effective to replace the entire exterior frame and siding with new materials.

For use as a community center, the building needs to be thermally insulated including the floor, walls and roof. The windows and doors

should be replaced with new insulated wood window and doors. The roofing should be replaced with new 50 asphalt shingles with gutters and downspouts to direct water away from the building.

INTERIOR ARCHITECTURAL FINISHES

The interior finishes of the bathhouse are in poor condition. The building was abandoned in 1993 and it appears no maintenance work was completed long beforehand. The interior walls are covered with painted wood boards and plywood. The floor is bare concrete. The ceiling system consists of a ceiling panel and grid system suspended from the original painted plywood ceiling. The showers and toilet rooms are constructed of painted masonry partitions. The change compartments are construction of painted plywood.

The original interior layout of the bathhouse appears to have been modified, perhaps several times, the middle section of the building with the reception area and storage rooms may be original to the building. The toilet and shower rooms have been altered to create public toilet rooms that are accessed from the exterior of the building.

Recommendations: The layout of the building to serve as a bathhouse does not function well for a community center. The interior walls and finishes should be all replaced with new finishes to accommodate a new floor plan suitable to a community center.

PLUMBING MECHANICAL AND ELECTRICAL SYSTEMS

Plumbing: Since the previous use of this building was a bathhouse, the existing water service and sewer serving the site should be sufficient for a new community center. The existing plumbing fixtures are in poor condition and do not meet current plumbing and accessibility codes.

Recommendations: For use as a community center the building will require a complete rework of the plumbing systems. This includes new accessible toilet rooms, water fountains and a serving kitchen.

Mechanical: The use of this facility as a pool bathhouse was seasonal and there is no existing heating or air conditioning system. Ventilation for the spaces was provided only by wall louvers.

Recommendations: A completely new HVAC system will be required for either the renovated existing structure or a new facility to be constructed. New split system air to air heat pump systems are viable system options for both a new building to be constructed or for the existing building to be renovated.

Electrical: The building's electrical service appears to be too small to meet the demands of a conditioned community center and does not meet current National Electrical Code requirements. The existing power distribution and lighting systems are in poor condition. The building is not provided with a fire alarm system.

Recommendations: Install a new electrical service. Demolish and replace all existing electrical systems. Install new telecommunications services and a fire alarm system in the building.



3) OPINION OF PROBABLE PROJECT COST

The Opinion of Probable Project Cost includes an estimate of the probable construction and design costs, plus Owner related cost for review fees, testing, furniture, furnishings, equipment, telephone and building commissioning. The estimates assume repair of existing systems, minimal floor plan changes and no site improvements. Also included is 2 years of cost escalation based on estimated 4.8% annual project cost increase.

OPTION I: RECONSTRUCTION

Option I assumes deconstruction of the original structure and salvaging usable materials for reconstruction of the structure. Base on our survey salvage materials would be limited to wood framing, some 1x lumber for wall/roof sheathing and a limited amount of siding. Damaged materials will be replaced with new materials. The foundation system will be replaced entirely. The reconstructed structure would be modified to accommodate its new use as a community center. Modifications include new toilet rooms and a serving kitchen. For a detailed summary of probable costs, please see Appendix D "Opinion of Probable Project Cost- Option I" dated 12/15/09

OPTION II: REPLACEMENT

Option II assumes demolishing the existing structure and replacement with a new community center. For a detailed summary of probable costs, please see Appendix E "Opinion of Probable Project Cost- Option II" dated 12/15/09.



Coulter|Jewell|Thames, PA

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Planning for the Future

Duke Park Bathhouse Renovations

Site Issues

December 14, 2009

The following site conditions have been noted as potentially needing correction if expenditures are incurred to restore/renovate the Duke Park Bathhouse

Accessibility Issues

The current ADA Parking Spaces do not meet code. The slope from front to back is in excess of 2.0%. Substantial grading and reworking of the parking area would be necessary. Because of the fact that these spaces are accessed by backing directly into a public right of way (Acadia Street), it is highly likely that the Durham Public Works and Planning Departments will require moving any renovated spaces to a location where maneuvering is outside the public right of way

The pedestrian route from the existing ADA parking spaces is not accessible, and would require a substantial amount of grading and replacement of the sidewalks to make it so.

The front stoop of the building is cracked in the center and starting to collapse. The stoop also seems to be deficient in the width necessary to meet current code requirements for maneuvering area, and railings are absent.

The amphitheater to the east of the bathhouse does not appear to have an accessible route to it nor a seating area for persons in wheelchairs.

Recommendation: Create a new accessible parking area alongside the driveway just north of the building. Create a new sidewalk which meets code requirements for an accessible route from this parking area to the building. Create a new ramp and stoop on the Acadia entrance of the building that meets current ADA requirements. Provide an accessible rout from the new parking area to the amphitheater, and a wheelchair seating area.

Drainage and Tree Issues

There are areas along the north and south sides of the building where drainage seems to be directed to and under the building. This condition seems to have developed over the years as trees have grown up fairly close to the building.

Several trees have been allowed to grow up in close proximity to the building. The roots of these trees almost certainly extend beneath the building. If these tree roots have not contributed to the current foundation problems, it is quite possible they will in the future.

Recommendation: Remove all trees with 20' of the building. Re-grade the areas around the building to provide positive drainage away from and around the building.

By: Dan Jewell

Structural Condition Assessment of Duke Park Bathhouse
City of Durham Parks and Recreation
By Gardner & McDaniel, PA – December 8, 2009
Durham, NC

Executive Summary

Gardner & McDaniel, in conjunction with Roughton, Nickelson, Deluca Architects has performed a condition assessment of the former Duke Park swimming pool bathhouse. The scope of the survey is limited to a visual inspection of the building superstructure, including roof framing and sheathing, columns, siding and visible wall structure; the foundation walls and interior brick piers where accessible. The photographs included with this report are also a record of the existing conditions.

The bathhouse is a wood-framed structure with a cast-in-place concrete floor system, presumably built in the mid 1930's. As the use of the structure was seasonal, the space was never conditioned and was shuttered for a majority of the year. Photographic archives show infill blockwork was added to the foundation prior to the 1960's and some windows were removed with the last renovation effort that occurred during the same decade. Otherwise, the structure has survived in its original configuration. The Duke Park swimming pool was closed in 1993 and the structure has been unused since that time.

Based on the survey observations, we believe that although some of the structural building materials have not visibly degraded, significant repairs must be made to make the structure sound for future occupancy and meet the standards set by the North Carolina State Building Code.

Condition Report and Recommendations

Where observation was possible, structural deficiencies were noted for the bathhouse. When observations could not be made, potential issues are noted. The nature of these deficiencies is as follows:

1. Roof Framing and Decking – The roof structure is comprised of 1" thick sheathing boards supported by trussed framing. Some of the sheathing has been replaced in the past and a number of rafters have been sistered due to water damage. Overall, much of the wood is sound, although isolated cases of damage are present in sheathing and a few rafters (Fig 1-1, 1-2). This material should be replaced on a case-by-case basis and new rafters sistered to old. There is one instance where the roof framing has separated from the column support below (Fig. 1-3); this should be addressed with the column replacement discussed later.

Note that the design and the construction of the roof framing is not in accordance with the modern building code for wood construction. Some areas of particular concern are the use of slender, unbraced compression members, the location and method of nailed splices in rafters, and nailed connections at rafter ends (Fig 1-4).



Figure 1-1 – Separation of Sheathing Boards



Figure 1-2 – Damaged Rafter and Sheathing



Figure 1-3 – Separation of Framing from Column Support



Figure 1-4 – Rafter Damage and Nailed End Connection

2. Columns and Exterior Walls – A series of columns support a continuous wood beam that bisects the roof frame. The middle bays are supported by columns that consist of 4' lengths of 3 ½" OD cast iron pipe with threaded couplings (Fig. 2-1). This type of splice is not a sound method of joining a compression member and should be replaced. Also, the cap plates supporting the 6" beam are undersized by modern standards (Fig. 2-2). End columns are 6x6 wood members; both of these columns are failing due to extensive rot (Fig 2-3) and should be replaced immediately.

The exterior wall siding has water damage over much of the structure and is in need of complete replacement. The condition of the wall structure was not observed during this survey, however the damage presented by the siding and interior partition members indicates that a significant percentage of the wall sheathing and structural supports should also be replaced (Fig 2-4, 2-5, 2-6).



Figure 2-1 – Interior Column with Threaded Couplings



Figure 2-2 – Column Cap Plate



Figure 2-3 – Unsafe Wood Column



Figure 2-4 – Damaged Exterior Siding



Figure 2-5 – Damaged Post at Exterior Wall



Figure 2-6 – Damaged Post at Exterior Wall

3. Concrete Floor Slab – The concrete floor found throughout the structure is cracked and spalling excessively in many locations on the interior surface. Examination of the underside of this slab shows that the original supporting timbers have rotted away (Fig.3-1, 3-2), leaving the slab to span between the exterior brick foundation piers and the interior column piers – a potential collapse hazard. The underside of the slab is also spalled in many locations with reinforcing bars exposed (Fig. 3-3, 3-4).

The current condition of the floor slab is inconsistent with supporting the 100 psf building code mandated live load for this structure. It is vital that this floor be reconstructed to meet this standard.



Figure 3-1 – Unsafe Condition, Floor Slab Support



Figure 3-2 – Missing Floor Timbers



Figure 3-3 – Exposed Slab Reinforcing



Figure 3-4 – Slab Reinforcing

4. Building Foundations – Foundations for this structure are composed of brick masonry piers, likely supported on brick footings. Varying degrees of foundation settlement has occurred, leaving visible gaps between foundations and superstructure. This movement has caused the structure to visibly sag in some locations. Of particular note, gaps between the rear concrete entrance slab and foundation piers are greater than 1”; this slab has deflected (Fig. 4-1).

In addition, many piers have settled to an out-of-plumb condition and are not able to safely carry the design load. In some instances the brickwork is piecemeal in fashion (Fig 4-2, 4-3). Mortar joints have opened or are missing; Gaps between the piers and concrete slab are also present. To address these issues, a full foundation rehabilitation should be made in conjunction with the rebuilding of the concrete floor slab previously discussed.



Figure 4-1 – Separation Between Entrance Slab and Foundation



Figure 4-2 – Slab Support Pier, Missing Mortar Joints



Figure 4-3 – Slab Support Pier, Piecemeal Construction



EDMONDSON ENGINEERS

ASSESSMENT OF PLUMBING, MECHANICAL AND ELECTRICAL SYSTEMS

DUKE PARK BATH HOUSE
DURHAM, NC

Prepared for:
City of Durham

Report by:
Michael Edmondson, PE – Plumbing and Mechanical
Dennis Hayes, PE – Electrical
Edmondson Engineers, P.A.

December 12, 2009

DUKE PARK BATH HOUSE

This approximately 2,840sf building was previously used as a bath house for the Duke Park Pool. It is proposed that this facility be renovated or replaced with a new facility to serve as a community center. In general any renovation and change of use of the existing facility will require a complete demolition and replacement of the existing plumbing, mechanical and electrical systems. Below is a brief description of the existing systems, a summary of the proposed new systems and a budgetary cost estimate for these systems.

Plumbing

Since the previous use of this building was a bathhouse, the plumbing was extensive and the water service and sewer serving the site should be sufficient for a new community center. The existing plumbing fixtures are very old and do not meet current plumbing and accessibility codes. A major renovation to the building or changing the use of the building will require a complete rework of the plumbing systems. There is a gas service to the building but the meter has been removed.

The cost for new plumbing systems will be \$40,000 and will be about the same regardless of whether the existing facility is renovated or a new facility is constructed. For the budgetary cost estimate it is assumed that the following fixtures will be installed.

Women's toilet - 2 lavatories and 3 water closets
Men's toilet - 2 lavatories, 2 urinals and 1 water closet
Water Cooler, Kitchen Sink and 2 hose bibs

Mechanical

The use of this facility as a pool bathhouse was seasonal and there is no existing heating or air conditioning system. Ventilation for the spaces was provided only by wall louvers.

A completely new HVAC system will be required for either the renovated existing structure or a new facility to be constructed. New split system air to air heat pump systems are viable system options for both a new building to be constructed or for the existing building to be renovated.

New Building: An air to air split system heat pump system for a new building would cost approximately \$16 - \$18 per square foot to purchase and install or a total installed cost of \$45,000 to \$51,000.

Existing Building: An air to air split system heat pump system for the existing building renovation would cost approximately \$17 - \$19 per square foot to purchase and install or a total installed cost of \$48,000 to \$54,000.

Electrical

The power for this building is supplied by a pole mounted transformer two spans to the north on Acadia Street. The electrical service equipment is located on the wall behind the reception counter at the main entrance. The service appears to be rated 120/240V, 60A, single phase and is comprised of a small wire trough and multiple disconnect switches. This installation is too small to meet the demands of a conditioned community center and does not meet current National Electrical Code requirements.

Since the existing facility served as a bathhouse there are very few receptacles and the lighting is not sufficient for a community center. The building is not provided with a fire alarm system. All existing electrical systems will need to be demolished and replaced for either a new building or renovation of the existing building.

It is anticipated that the community center building will require a new 120/240V, 200A electrical service. This service will likely require a new transformer and potentially a new secondary circuit from the transformer to the building. It is recommended that the new transformer be pad mounted with an underground secondary to the new service equipment. The electrical service will feed new branch circuit panelboards for lighting, receptacle, small kitchen appliance, and mechanical equipment circuits. In addition to the new power systems, provisions for new telecommunications services for the building will be required.

The cost for new the electrical systems will be \$50,000 and will be the same for a renovation to the existing facility or a newly constructed facility.

The NC building code will not require a fire alarm system for a community center of the proposed size. However, it is recommended that a fire alarm system be installed to protect the investment in a new or renovated facility and to provide a life safety system that exceeds the minimum code requirements. The cost for a new commercial fire alarm system will be \$8,000 - \$10,000.

Preliminary Opinion of Probable Project Cost- Option IProject: **Building Assessment for Duke Park Bathhouse**

City of Durham

Durham, North Carolina

RND# 0937.01

Date: 12/15/09

Project Description:

Reconstruction of existing structure

Interior Area

2840 SF

Total Opinion of Probable Construction Cost

#	DESCRIPTION	COST	UNIT	QUANTITY	TOTAL
Exterior- Building Site Repairs					
1	Site work / Tree removal	\$25,000.00	/allowance	1	\$25,000
2	Accessible Parking and Drives	\$15,000.00	/space	2	\$30,000
3	Accessible walkways and ramps	\$35.00	/lf	300	\$10,500
4	Landscaping repairs	\$20,000.00	/allowance	1	\$20,000
Exterior- Building Envelope Restoration					
5	Deconstruction of structure	\$10.00	/sf	2840	\$28,400
6	Salvage of reusable material (wood)	\$5.00	/sf	2840	\$14,200
7	New masonry pier foundation and concrete floor system	\$20.00	/sf	2840	\$56,800
8	Reconstructed wood frame	\$35.00	/sf	2840	\$99,400
10	New Roof, Gutters and Downspouts	\$12.00	/sf	2840	\$34,080
11	New windows and doors	\$600.00	/unit	36	\$21,600
12	Building Insulation	\$2.50	/sf	2840	\$7,100
13	Painting	\$2.00	/sf	2400	\$4,800
Interior- Renovations and Modifications					
14	Flooring	\$3.50	/sf	2840	\$9,940
15	Ceilings	\$2.00	/sf	2840	\$5,680
16	Interior walls	\$3.25	/sf	2840	\$9,230
17	Toilet room finishes	\$50.00	/sf	400	\$20,000
18	Kitchen finishes	\$35.00	/sf	200	\$7,000
Plumbing, Mechanical and Electrical					
19	New Plumbing System	\$40,000.00	/lump sum	1	\$40,000
20	New HVAC System	\$18.00	/sf	2840	\$51,120
21	New Electrical Service	\$50,000.00	/lump sum	1	\$50,000
22	New Fire Alarm System	\$9,000.00	/lump sum	1	\$9,000
Subtotal					\$468,350
General Contractor Costs					
	10.0% General Conditions and Requirements				\$46,835
	15.0% Overhead and Profit				\$70,253
	1.5% Insurance (Builders Risk and Gen Liability)				\$7,025
	2.0% Bonds (P&P and Subguard)				\$9,367
	10.0% Construction Contingency				\$46,835
Total Opinion of Probable Construction Cost					\$648,665
Fees and related costs					

#	DESCRIPTION	COST	UNIT	QUANTITY	TOTAL
	12.0% Design Fee- Basic Services (Arch, MEP)				\$77,840
	5.0% Additional Design Services (Programming, Site Planning, Construction Testing)				\$32,433
	15.0% Owner related costs (fees, testing, FF&E, review costs, commissining)				\$97,300
	10.0% Owner Contingency				\$64,866
Subtotal					\$921,104
	9.6% Construction Cost Escalation (24 months at 0.4% per month)				\$62,272
Total Opinion of Probable Project Cost					\$ 983,376

Construction Cost per Square Foot w/o sitework	\$198
Construction Cost per Square Foot	\$228
Project Cost per Square Foot	\$346

This "Opinion of Probable Project Cost" is based on our professional experience. However, we do not guarantee that fees, proposals, bids, or construction cost will not vary from this opinion.

Preliminary Opinion of Probable Project Cost- Option IIProject: **Building Assessment for Duke Park Bathhouse**

City of Durham

Durham, North Carolina

RND# 0937.01

Date: 12/15/09

Project Description:

New structure of similar size and style of original structure

Interior Area 2840 SF

Total Opinion of Probable Construction Cost

#	DESCRIPTION	COST	UNIT	QUANTITY	TOTAL
Exterior- Building Site Repairs					
1	Site work / Tree removal	\$25,000.00	/allowance	1	\$25,000
2	Accessible Parking and Drives	\$15,000.00	/space	2	\$30,000
3	Accessible walkways and ramps	\$35.00	/lf	300	\$10,500
4	Landscaping repairs	\$20,000.00	/allowance	1	\$20,000
Exterior- New Building					
5	Demolition	\$7.50	/sf	2840	\$21,300
6	Slab on grade foundation system	\$15.00	/sf	2840	\$42,600
7	Wood framed building	\$45.00	/sf	2840	\$127,800
Interior- New Building					
8	Flooring	\$3.50	/sf	2840	\$9,940
9	Ceilings	\$2.00	/sf	2840	\$5,680
10	Interior walls	\$3.25	/sf	2840	\$9,230
11	Toilet room finishes	\$50.00	/sf	400	\$20,000
12	Kitchen finishes	\$35.00	/sf	200	\$7,000
Plumbing, Mechanical and Electrical					
13	New Plumbing System	\$40,000.00	/lump sum	1	\$40,000
14	New HVAC System	\$17.00	/sf	2840	\$48,280
15	New Electrical Service	\$50,000.00	/lump sum	1	\$50,000
16	New Fire Alarm System	\$9,000.00	/lump sum	1	\$9,000
Subtotal					\$390,830
General Contractor Costs					
	10.0% General Conditions and Requirements				\$39,083
	15.0% Overhead and Profit				\$58,625
	1.5% Insurance (Builders Risk and Gen Liability)				\$5,862
	2.0% Bonds (P&P and Subguard)				\$7,817
	10.0% Construction Contingency				\$39,083
Total Opinion of Probable Construction Cost					\$541,300
Fees and related costs					
	12.0% Design Fee- Basic Services (Arch, MEP)				\$64,956
	5.0% Additional Design Services (Programming, Site Planning, Construction Testing)				\$27,065
	15.0% Owner related costs (fees, testing, FF&E, review costs, commissioning)				\$81,195
	10.0% Owner Contingency				\$54,130
Subtotal					\$768,645
	9.6% Construction Cost Escalation (24 months at 0.4% per month)				\$51,965

#	DESCRIPTION	COST	UNIT	QUANTITY	TOTAL
Total Opinion of Probable Project Cost					\$ 820,610

Construction Cost per Square Foot w/o sitework	\$160
Construction Cost per Square Foot	\$191
Project Cost per Square Foot	\$289

This "Opinion of Probable Project Cost" is based on our professional experience. However, we do not guarantee that fees, proposals, bids, or construction cost will not vary from this opinion.



Duke Park Bathhouse – Site Issues

12.14.09



Duke Park Bathhouse



Duke Park Bathhouse



Duke Park Bathhouse



Duke Park Bathhouse